GENERAL

$3.00

★ **AVALON HILL**

Volume 23, Number 1

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AH Philosophy Part 115

The Avalon Hill Game Company is deluged with a veritable flood of game submissions weekly; the circumstances of our schedule is such that we simply do not have the time nor the manpower to even begin to sift through them all. Furthermore, like most game publishers these days, we have found it expedient to rely primarily on our own personnel for the bulk of our design needs. Consequently, do not be surprised if we decline your kind offer to evaluate your game. We realize that we may be turning down the next *Monopoly* or *Trivial Pursuit* but circumstances and nearly 30 years in the game business have taught us that this is the best course for us to follow.

Inevitably the next question from the rejected designer is whether we could suggest where he/she can submit his/her game. Sadly, we cannot. Most established game publishers have long since ceased dealing directly with the public—primarily for legal reasons. Virtually thousands of people fancy themselves as game designers and earnestly believe that their creation is extremely innovative, interesting and fun. It is hard for them to accept that not everyone shares their enthusiasm for their product or that their "original" idea has been used before. These disappointed folk are then predisposed to believe that their "idea" has been "stolen" whenever a similar approach or game subject hits the market—even though that concept may well have been on the company's

PARATROOPER

The men composing the spearhead of the Allied invasion of France stepped out of their planes 700 feet above the Cotentin peninsula shortly after midnight on June 5th, 1944 to land behind the beaches of Normandy as the largest aerial invasion force yet assembled. Badly scattered by poor drops and facing predicted estimates of 50-90% casualties, they stood alone upon Hitler's Fortress Europa with neither armor support nor heavy equipment. They were not only to hold their ground until relieved from the sea, but were also to attack and secure vital bridges and roads to prevent reinforcement of the beach defenses. This is the story of two American Airborne Divisions, the 82nd and 101st, as they made history in such places as Ste. Mere-Eglise, Foucarville, St. Come-Du-Mont, La Fiere, Pont L'Abbe and Neuville-au-Plain. It is a vivid story of men in combat portrayed in gut-wrenching detail as only ASL can tell it.

PARATROOPER is the second module in the ASL series, which means it is not a complete game unto itself. Players will need boards 1-4 of SQUAD LEADER and the ASL rules to play all eight scenarios included herein. However, all other components necessary to play the game are enclosed—absolutely no other purchase is necessary. PARATROOPER has been specially designed as an Introductory Module for those SQUAD LEADER players contemplating a switch to ASL to provide an inexpensive medium for them to sample the rich delights of the ASL game system without requiring the purchase of the full Russian/German OB found only in the first ASL Module: BEYOND VALOR. Yet, the countermix in PARATROOPER serves as a supplement to the BEYOND VALOR components, rather than an unneeded duplication of those counters should the player decide to expand his ASL collection.

Due to the special nature of the fighting that comprised the airborne invasion of Normandy, the scenarios emphasize infantry encounters with little in the way of vehicles, ordnance, OBA or the more detailed rules which constitute the entire spectrum of ASL. This goes hand-in-hand with the introductory nature of PARATROOPER, which also includes Chapter K of the ASL rules: the Squad Leader Training Manual. The Training Manual is not a set of rules—but a supplement to ASL which attempts to teach the basic concepts of the game system to new players in a conversational style complete with attempts at humor. This "hands-on" approach, which takes the reader through repeated examples of play, may even serve as a handy refresher course to veteran Squad Leaders. As always, however, we recommend that players own SQUAD LEADER before attempting PARATROOPER—if only to acquire the four playing boards therein that are required for play of the PARATROOPER scenarios. PARATROOPER is available now for $15.00 from The Avalon Hill Game Company, 4517 Harford Road, Baltimore, Maryland 21214. Please add 10% shipping and handling to payment (20% for Canadian orders or 30% for overseas orders). Maryland residents please add an additional 5% state sales tax.

BASIC FIGHTER MANEUVERS
The Key to Victory in FLIGHT LEADER
By Gary C. Morgan

Captain Gary Morgan, besides being the designer of FLIGHT LEADER and other games on modern air combat, is himself a serving jet-jockey currently on duty in Germany flying a "Wild Weasel". He should know whereof he speaks when he seeks to introduce our readers to the mystical world of high-tech air combat.

FLIGHT LEADER was designed to accurately simulate the arena of tactical air combat. By adhering to the basic physical laws covering the flight performance of modern jet aircraft, a playable, yet highly realistic wargame evolved. Whether you are playing the Basic Game or integrating many of the Optional Rules into the Advanced Game, you find yourself in a tactical air combat laboratory, faced with and required to solve the same problems facing real-world jet fighter pilots. The proof of *FLIGHT LEADER* as a game system, correctly replicating the environment of jet-to-jet air combat, lies in its successful simulation of Basic Fighter Maneuvers, or *BFM*—the fighter pilot's "toolbag".

Correct employment of BFM in the game will net the player the highest degree of success—either by minimizing tactical mistakes, or by maximizing the potential available in his forces, both to achieve kills and insure survival. Some tactical principles can be learned from reading the *FLIGHT LEADER* game rules and designer's notes. Beyond this basic guidance, however, the gamer must rediscover the tactical lessons formulated over the past seventy years by actually playing the game and learning from his mistakes. Since the average gamer doesn't have access to fighter pilot tactical training manuals, I have the opportunity through this forum to paraphrase the BFM texts, and help improve your play of *FLIGHT LEADER*. Much of what is included in this article is aimed at the Advanced Game, which is most like the real thing. If you are not yet playing the Advanced Game, keep these concepts in mind for the future.

Basic Fighter Maneuvers enable the pilot to gain an energy and position advantage which will place his aircraft into weapons parameters and allow him to employ ordinance. Defensive BFM does just the opposite, improving the defender's chances of survival. The weapon to be used ultimately determines the degree of BFM needed for the kill. BFM is *not* composed of autonomous, specific maneuvers each taken to a conclusion. Air combat is a fast and fluid situation, based on observation, prediction, movement, and reaction to the other jet's maneuvers until a kill or separation results. Thus, BFM is a blending of move/countermove based on continuous reassessment of the changing tactical situation. During a dogfight you are always transitioning between various BFM moves.

OBJECTIVES OF BASIC FIGHTER MANEUVERS

1. Allow the attacker to gain and maintain adequate energy to permit future maneuvering potential against opposing aircraft.

2. Gain and maintain nose-tail separation (your aircraft's nose behind the other aircraft's tail) against the opponent. Maneuvers allow the pilot to position himself behind the bandit with energy to enable him to stay there.

3. Permit maneuvering into a vulnerable cone from which ordnance may be employed.

4. Finally, and fundamentally, to kill the enemy. To do this, the pilot must recognize his weapon's parameters and fire once he arrives in them. If he can't employ ordnance in the reasonable Pk (Probability of Kill) shot, he must re-position until he can. If the re-position is not possible or advisable tactically, he must separate (i.e., disengage) prior to losing his position of advantage.

PRINCIPLES OF MANEUVER

Given the basic objectives and an overview of what BFM is, let's examine the possible spatial relationships between two aircraft, and how they identify the appropriate maneuvers to execute at the right time. These spatial relationships are characterized by geometry in the form of angles and circles.

Position geometry is defined by aspect angle, angle-off (for heading crossing angle), and range. *Aspect Angle* (see Figure 1) is the angle drawn to the attacker, regardless of his heading, from an origin directly behind the target. An attacker directly on a target's nose is at a 180 degree aspect angle, while an attacker directly behind the target is at 0 degrees aspect. A position anywhere else around a target will be at an aspect angle between these two extremes. *Angle-off* (see Figure 1) is simply the angle defined by the intersection of the headings of both aircraft. Angle-off in *FLIGHT LEADER* will always be 0, 60, 120 or 180 degrees, due to the hex grid. *Range* is the three-dimensional distance separating the two aircraft. Ideal position is looking up the enemy's tailpipe at zero degrees aspect and angle-off, and perfect missile or gun range depending on your weapons.

Turn circle is defined by the size of the turn radius (hexagonal turning pattern or turn mode in *FLIGHT LEADER*) and the rate of turn (number of one-hexside turns during movement). The turn circle varies with the intensity of the turn involved (the G-forces used) and airspeed. Examination of the turn mode schedules in *FLIGHT LEADER* show the variation of turning capabilities between aircraft by G available, as dictated by movement allowance (airspeed). When attacking a turning defender, the attacker must reach the defender's turn circle to start solving the geometric problems of aspect and angle-off. If an attacker maneuvers prior to reaching the defender's turn circle, he may sacrifice any angular advantage he had prior to the maneuver. Once he
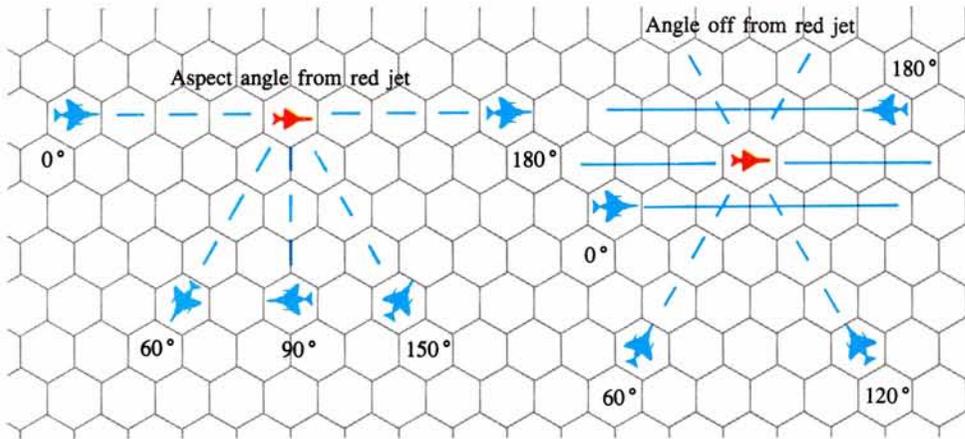
Figure 1: Position Geometry Angles

Figure 2: Pursuit Curves

arrives at the defender's turn circle, the attacker has three possible pursuit courses to use—lead, lag or pure pursuit (see Figure 2).

Lead pursuit involves pointing to a position out *ahead* of the target, better known as "cutoff" (to "cut him off at the pass"). Lead pursuit will reduce range to the target quicker than any other course, and if used outside the defender's turn circle, will minimize the time the defender has to generate aspect and angle-off. If used inside the defender's turn, it will close the range but will increase the aspect and angle-off. However, continued lead pursuit will eventually fly the attacker out in front of the target—not a good idea! Trying to close the range to the target by accelerating rather than pulling lead, may result in a wider turning circle for the attacker and possibly being spit out in front of a decelerating defender.

Lag pursuit involves pointing *behind* the defender. Against a turning bandit, this decreases aspect but increases angle-off. Once in the target's aft quadrant (blind cone), the attacker must be turning as well as the target or he will eventually lag around to the bandit's nose.

Pure pursuit is simply continuously pointing *at* the target. It solves aspect and angle-off on the non-turning bandit, and flies the attacker to a point behind the target. Inside a turning target, aspect and angle-off build as the range closes, until ever greater G is required to maintain pursuit, eventually forcing the attacker into lag pursuit.

TURNING ROOM AND USE OF THE VERTICAL

"Turning room" is that distance between you and the bandit which allows you to accelerate and decrease range, or to turn and decrease angles. Turning room is either lateral or vertical. Lateral turning room is *in* the bandit's plane of turn (usually in the horizontal—a flat level turn), while vertical turning room is *out* of the bandit's plane of turn. STAR TREK fans may remember the engagement in the movie *The Wrath of Khan* where Kirk outmaneuvers Khan by using the vertical, out of Khan's plane of turn. This is the most difficult concept for our normally two-dimensional minds to comprehend, and the Inexperienced Pilots in *FLIGHT LEADER* often find themselves in flat turns. We also tend to visually scan along the horizon, and may never see the high or low bandit.

Lateral turning room is only advantageous to the attacker *outside* the defender's turn circle in a maneuver called a "Belly Entry". (Figure 3 demonstrates how to get a Belly Entry when you can't hack the corner from inside the target's turn.) This may require a wingman behind the bandit to "herd him around", with either the attacker or bandit flying a clockwise circle and the other flying a counterclockwise turn, with both intersecting together like ice-skaters to describe a "Figure 8" as viewed from

above. If performed correctly, the target never sees the attacker, who gets a picture-perfect heat missile shot, or tracking gun shot. For the attacker inside the target's plane of turn, his lateral options are limited to the three pursuit courses of lead, pure, and lag—none of which solve all of the geometric problem. The answer in this case is to go out of the defender's plane of motion, for vertical turning room.

Use of the vertical against a turning bandit offers the attacker two options: going high or low. If the bandit is "on the deck", at minimum altitude, the attacker can discount the low option and is forced to go high. By taking the fight into the vertical, the normal limitations of turning (turn mode) are temporarily suspended; *FLIGHT LEADER* was designed to allow you to pirhouette in a climb or dive to do this. Once the jet climbs or dives, the lateral G turn (using pitch) is now replaced by the capability to reorient the aircraft using roll. The vertical turning room now also allows the attacker to seek the defender's turn circle, though in a different dimension from the bandit's plane of turn.

The decision of whether to go high or low will be determined by the comparative energy states of the attacker relative to the bandit. Here we find the classic trade-off between kinetic (speed) and potential (altitude) energy, a concept called "Energy Management". A slow attacker will dive, trading altitude for airspeed; a fast attacker will climb, to do just the opposite. Each will fly a lead pursuit initially, to intercept the bandit at the future point around the circle, before transitioning to a pure pursuit and getting back to the bandit's altitude. These are called the "High Yo-Yo" (Figure 4) and "Low Yo-Yo" (Figure 5), and simultaneously solve the problems of closure (too much or too little, respectively) and angles through the use of vertical turning room.
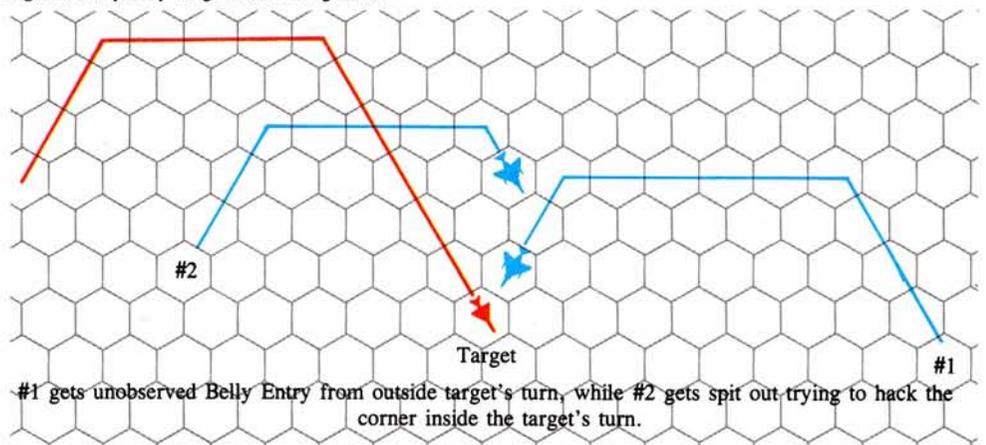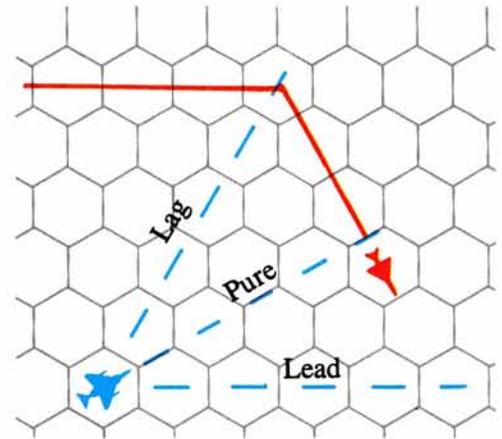
MAINTAINING NOSE/TAIL ADVANTAGE

Suppose you find yourself flying in the same direction as a bandit off your left or right wing. As an example, let's say he is off your right wing, at your 9 o'clock. You can turn left, turn right, or go straight. If you turn right, you are dead. He will also turn right, and using the lateral turning room between you will be behind you in your blind cone at 6 o'clock, with a heat missile on its way up your tailpipe. NEVER TURN AWAY FROM A BANDIT! [*If you don't get anything else out of this article, remember this one rule!*] If you go straight and he goes straight, and both of you are at the same speed, the problem begins again. If you are going faster, you will move out ahead of him, reducing his aspect problem and giving him the advantage. Imagine a line from your three o'clock (right wing) through to your nine o'clock (left wing)—called the "Three-Nine Line". Aircraft behind an opponent's 3-9 line have an advantage. Conversely, if you are slower, he will slip out ahead and you will gain an advantage. This situation, with both aircraft slowing down for a 3-9 advantage, evolves into a flat "Slow Speed Scissors", and eventually the aircraft with better slow speed handling characteristics and/or the better pilot will win. But even if you win a slow speed scissors, you may become a floating strafing target for another adversary afterwards. Watch your fuel, and don't go out of control!

Instead of continuing your turn into the other jet, suppose you roll wings-level and climb instead of decelerating ("Quarter Plane and Zoom"); you've traded your forward velocity for some energy you may be able to use later, and have taken away his turning room. If the other guy doesn't climb, he will spit out ahead of you. If he also takes it up and turns into you, the fight turns into a "Vertical Rolling

Figure 3: Belly Entry using Lateral Turning Room

#1 gets unobserved Belly Entry from outside target's turn, while #2 gets spit out trying to hack the corner inside the target's turn.

Figure 4: High Yo-Yo

Scissors'' (like the Slow Speed Scissors but going up). Eventually, somebody will run out of energy and nose over to get away. The guy with 3-9 advantage simply follows the other guy down and shoots him out of the sky.

SEPARATIONS: LIVE TO FIGHT ANOTHER DAY

If you no longer have the potential to maneuver into shot parameters or you no longer have ordnance or fuel remaining to continue fighting, it is time to separate prior to losing your position of advantage. Don't get caught on the map as you run out of fuel—that's an easy victory for the enemy. Plan one ''Joker'' (minimum necessary reserve fuel to escape) fuel state for the middle of the map and one for deep into enemy territory; and once you get near the fuel based on your position, start working your separation. Don't wait until you are on the defensive to attempt a separation—you may not get the chance. The ideal separation occurs with the bandit turning in reaction to your ordnance attack, while you are in his blind cone and reversing the direction of turn. Ultimately, you should strive for 180 degrees of angle-off at 0 degrees aspect, tail to tail. You should be in a slight descent, in afterburner, to get maximum speed. Once the bandit gets the hint that you are no longer a threat and turns to come after you, you should be heading for hyperspace. (Figure 6 shows the attacker coming in for an inside missile shot, then reversing direction and extending away for a separation.)

Figure 5: Low Yo-Yo
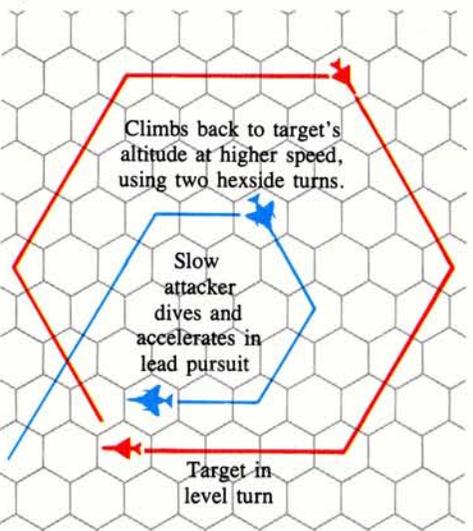
PULLING G'S TO TURN FIGHTERS

Aerodynamics is the study of how airplanes fly and how they perform using the laws of physics. Every American fighter pilot has attended at least one class in aerodynamics to learn how to effectively employ his airplane in combat. These principles and laws of physics have been incorporated into the *FLIGHT LEADER* game system, so you don't have to be a science whiz to become an Ace. However, it doesn't hurt to understand some of the concepts that went into the design of *FLIGHT LEADER* and to understand the real world that *FLIGHT LEADER* simulates.

Most of us know from basic science how airplanes fly, with air moving faster over the top of the wing than below, and creating lift. Lift is opposed by mass, or weight exerted by the gravity of the Earth. Forward movement is created by thrust; in jet engines, that thrust is a product of superheating vast quantities of air which is sucked into the intakes, compressed, and blown out the tai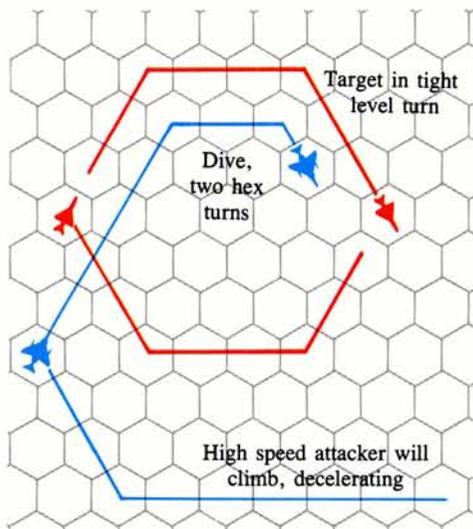lpipe. Thrust is opposed by drag in two forms. ''Parasite drag'' is the cross-sectional area of the jet perpendicular to the direction of travel. If you stick your hand out of a moving car window with the flat of your palm facing forward, your arm feels the force of drag. If you rotate your hand so only your thumb faces forward, you can also feel the reduction in parasite drag. This is why jets look sleek. The creation of lift forces over the wing also creates drag, called ''induced drag''. The more lift the wings produce, the more induced drag is created.

Once the jet is moving forward (thrust) and flying (lift), we want to be able to control where the airplane goes. The three axes of movement are ''Pitch, Roll, and Yaw''. *Yaw* is produced by a rudder on the vertical portion of the jet's tail, and works just like a rudder on a boat. Yaw is not used as much as Pitch and Roll, since it tends to turn the airplane sideways to the direction of travel. *Roll* is important in orienting the airplane to the direction of turn, in the same way you lean to turn on a bicycle. Roll is produced by spoiler/aileron combinations on the backs of the wings; the spoiler decreases lift on one wing, while the opposing aileron increases lift on the other wing. But *Pitch* is what really turns airplanes.

Pitch is the up and down rotation of the nose of the airplane, as though you were holding the wingtips and rocking the body of the airplane up or down. Pitch is produced by elevators, which look like small wings on the horizontal portion of the tail. If the elevators go up, this makes the tail go down and the nose will go up . . . and vice versa. Pitch produces a vector of turning movement directly out the top of the airplane, perpendicular to the wings and body. G-forces (gravity) are produced by the turn and, if positive, are oriented out the bottom of the airplane, according to Newton's Action/Reaction law. Negative G's are oriented out the top of the airplane.

The G forces or G's used in turning are called *Radial G*. If you are driving too fast and enter a turn, your car may start to skid and the can of soda on your dashboard is now splattered on the window opposite the direction of the turn. It was thrown there by Radial G. Radial G may equal or exceed the G exerted by the Earth, or ''God's G''. Examples of this include banked
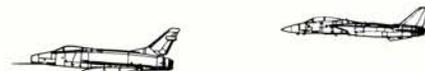
bobsled and bicycle tracks. A bobsled or bicycle running along sideways to the Earth makes a good model of an airplane in a turn. The roll axis banks them to the proper altitude and the speed and Radial G keeps them up on the track, rather than falling down. This force also applies to the up and down plane of movement. If you've ridden a roller coaster, and go into a dip, you can feel yourself pressing harder into the seat. You are now adding Radial G to the one G the Earth exerts. If you go over a crest, you get lighter in the seat; now that Radial G is opposing, or cancelling God's G. If this Radial G is equal to one, you are now weightless and at zero G. If you were upside down, in a loop, the Radial G would add to the G of the Earth.

Radial G and airspeed define the radius of turn. If an F-104 (Turn Mode F) and an F-16 (Turn Mode A) are flying at 400 knots and pulling three G's, their turns would be identical. If only two G's were used, the circle would be larger, as it would if 500 knots were the speed they were flying. The F-16 has a lot more G available and can turn in a small circle using these added G's. The comparative turning performance between two jets is based on the different G available between them at the same airspeed. Pulling an excessive amount of G's also can deplete energy, especially if the aircraft doesn't have a high thrust-to-weight ratio to counteract this load.

We've talked about the machine, but what happens to the pilot's body during this G loading? Pulling a lot of G's is very unnatural, and our bodies didn't evolve with more than a one G capability. The first effect under several G's is that the blood and internal organs go in the direction of the G. Under positive G, blood runs to your feet; under negative G it runs to your head. As your brain gets starved for blood, you may ''Gray-out''; the first effect will be loss of your peripheral and color vision as your eyes become first to feel the effects. If the blood pools in your lower body for an extended period of time, or under severe rapid G's, you may ''Black-out'' and lose conciousness for seconds or even minutes.

The G-suit was designed to help overcome grayouts and blackouts, and is a tight-fitting garmet resembling cowboy chaps and incorporating bladders around the waist, thighs and calves. As G is pulled, sensors in the aircraft begin pumping air through a hose into the G-suit, which inflates and constricts the lower body to keep the blood up in the upper body. Gravity Loss-of-Consciousness (or GLOC) has resulted in the loss of several fighters and pilots over the past years, as aircraft performance begins to exceed human capability even with G-suits. Your entire body weight is multiplied by the number of Gs; and under 5 G's, a 200 pound pilot weights half a ton. The head and arms, at many times their normal weight, are difficult to move or hold up. Excessive negative G produces a ''Red-out'' as too much blood stays up in your head. At several negative G's, the pilot may be pressed up against the canopy, and if not tightly strapped in, unable to control the jet with stick and throttles now out of his reach.

Remember this occasionally as you sit comfortably playing *FLIGHT LEADER*, and chalk off your losses to physics.

Figure 6: Separation after threatening inside Missile/Gun Attack

LEAD TURNS AND HEAD-ON TACTICS

Two fighters with 180 degrees of angle-off (head-on) are in a neutral position; neither has an advantage. If this situation presents itself at high aspect, you should seek some offset, or lateral turning room, prior to passing th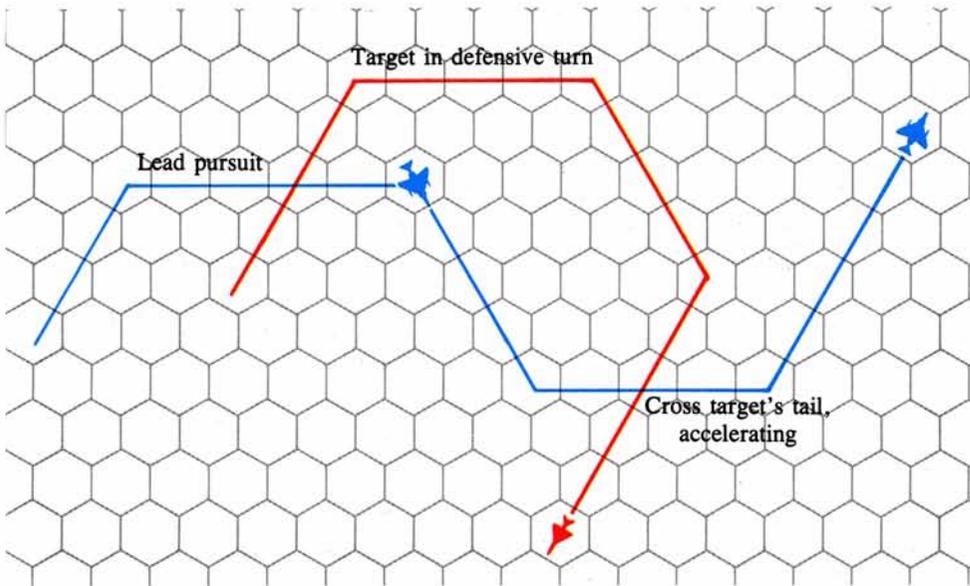e other aircraft—unless you want to limit your attack to a high-speed "hit and run" shot, requiring an all-aspect radar or heat-seeking missile (found in the Advanced Game). If this shot is a miss, you have no "back-up plan".

If you can get some turning room and have the energy for a turning fight, begin turning (lead turn) before you pass abeam the other aircraft so you can have some of the angle-off solved early. If you arrive at the bandit's 6 o'clock at 60 or 120 degrees of angle-off, you have only 120 or 60 degrees left to turn, while the bandit has 240 or 300 degrees to turn for your tail. Given a situation of head-on geometry with turning room, the tighter turning fighter will have the advantage, especially if the off-set equals his turn diameter. The counter to this is to deny turning room by flying directly toward the bandit. This resets the 180 degree angle-off situation and restores neutrality of advantage. (Figure

Figure 7: Lead Turn to reduce Angle-Off
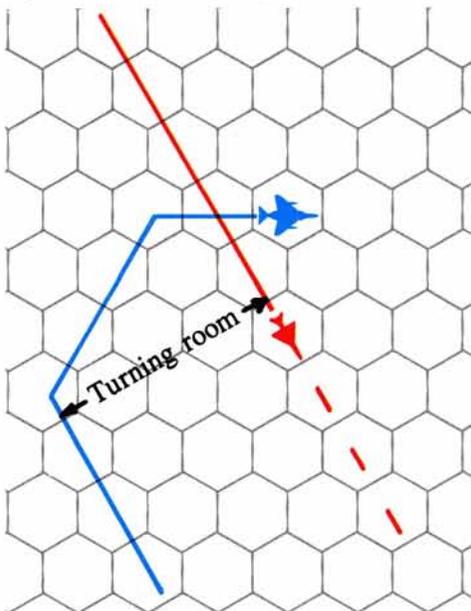
7 shows the attacker behind the target at 60 degrees of angle off, after using the turning room between the jets. The target now is at a disadvantage, with the attacker behind him, and must turn 240 degres for the attacker's tail.)

Vertical turning room in a head-on attack can influence the nature of the ensuing fight. You may decide to take it down or take it up early. By descending, you gain energy, get to look up at the bandit, and have a better chance of keeping sight of him and getting a radar lockon (no ground clutter) for a head-on missile shot. He, on the other hand, will have to roll the jet to see you, down in the clutter of the earth. As you pass, you can take it up for an Immelman entry if he doesn't see you, or continue up and roll onto your back for a "Slice-back" attack with speed advantage, while the bandit must slow down by coming up to get you. If you have a significant speed advantage over the bandit initially, you may decide to take it up at first, and "hawk the fight" on your back while rolling and deciding on the right place to swoop down and shoot, depending on the target's reaction.

THE INTERCEPT

Assume you and your opponent have just begun the game on your respective map-edges, with your forces flying toward each other. What do you do now? This is the intercept phase and there are a multitude of good answers. You would like to begin the engagement with all advantages possible.

First, and supremely, you want to get (and keep) Situation Awareness (or *SA*). This is every fighter pilot's first priority—to know what's going on. Ideally, you have radar controllers who have spotted the enemy force, and are directing you toward them. They have told you where the bandits are coming from so you can find them on your own radar and, *most importantly*, visually acquire them, since a "Tally Ho" is an essential prerequisite for winning an air battle. You may know how many there are and how high and fast they are flying. You might also know their formation, and whether or not other bandits are in the area. Last, but not least, you might know for sure that they are indeed bandits, and not your buddies coming home from a mission in enemy territory.

You probably *don't* know what type aircraft they are flying, or what weapons they have on board, and you won't know how good they are—yet. To survive you must assume the worst case: they are the most capable aircraft, weapons and crews the

enemy can field. Your reassessment of the enemy and tactical priorities will come later, after you begin fighting.

The next help you will want is that provided by Mother Nature. The clouds, sky conditions and position of the sun all play a key role in deciding how to approach the enemy so that you can find him before he finds you. This will decide your intercept geometry and whether you deploy high or low, left or right, to gain precious visual concealment. Given these consideration, the capabilities of your own force will then drive your attack tactics. Your aircraft type(s), weapons and the aircrews in your flight will dictate the way you meet the enemy. Do you have better turning and/or accelerating jets than the enemy; do you have all-aspect missiles, or rear-hemisphere only, or just guns? How many experienced/average pilots do you have; how cosmic a gameplan can you attempt. Are you outnumbered? How much fuel can you afford to use before separating? How many jets in your flight have radar contacts on the bandit(s)? What is your mission?

You will want to enter the fight with maximum SA; your flight has radar contacts, missiles in the air, and Tally-Ho on the enemy—with fuel, energy and turning room. The intercept will depend on the individual situation, incorporating all of the principles stated in this article.

THE MERGE: ONE-CIRCLE AND TWO-CIRCLE FIGHTS

When two converging aircraft pass each other close aboard, this is called "The Merge" (due to the merging of radar blips on a radar controller's scope). Actions prior to this point are called "The Intercept", and actions after are called "The Engagement". Once the merge occurs, the forces on both sides have several options. First, they may continue their direction of travel (blow through/separate) if the situation is tactically unpromising. Remaining in the turning dogfight for an extended period of time, when there are a lot of bandits in the area, is a good way to find yourself quickly outnumbered, and out of airspeed and ideas.

Second, they may turn the *same* way (both left or both right), one going clockwise and the other counter-clockwise. This develops into a One-Circle Fight (see Figure 8). A tighter turning aircraft has the advantage in this situation, and should be striving for lateral turning room inside the wider turning aircraft's turn circle. He initially makes his tightest turn, pulling lag behind the other aircraft's tail to reduce aspect, and soon reverses his turn to reduce the angle-off. A one-circle fight between two similar performing aircraft normally results in a stalemate.

Figure 8: One Circle Fight
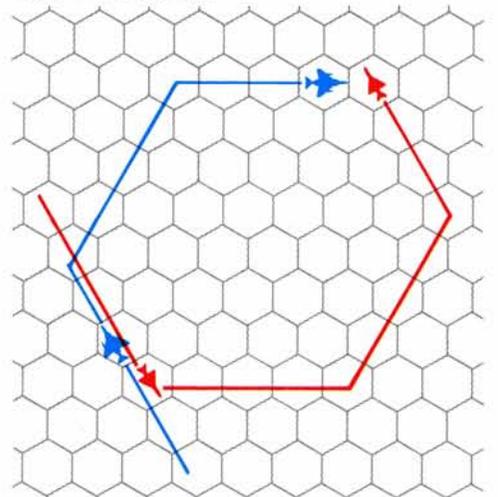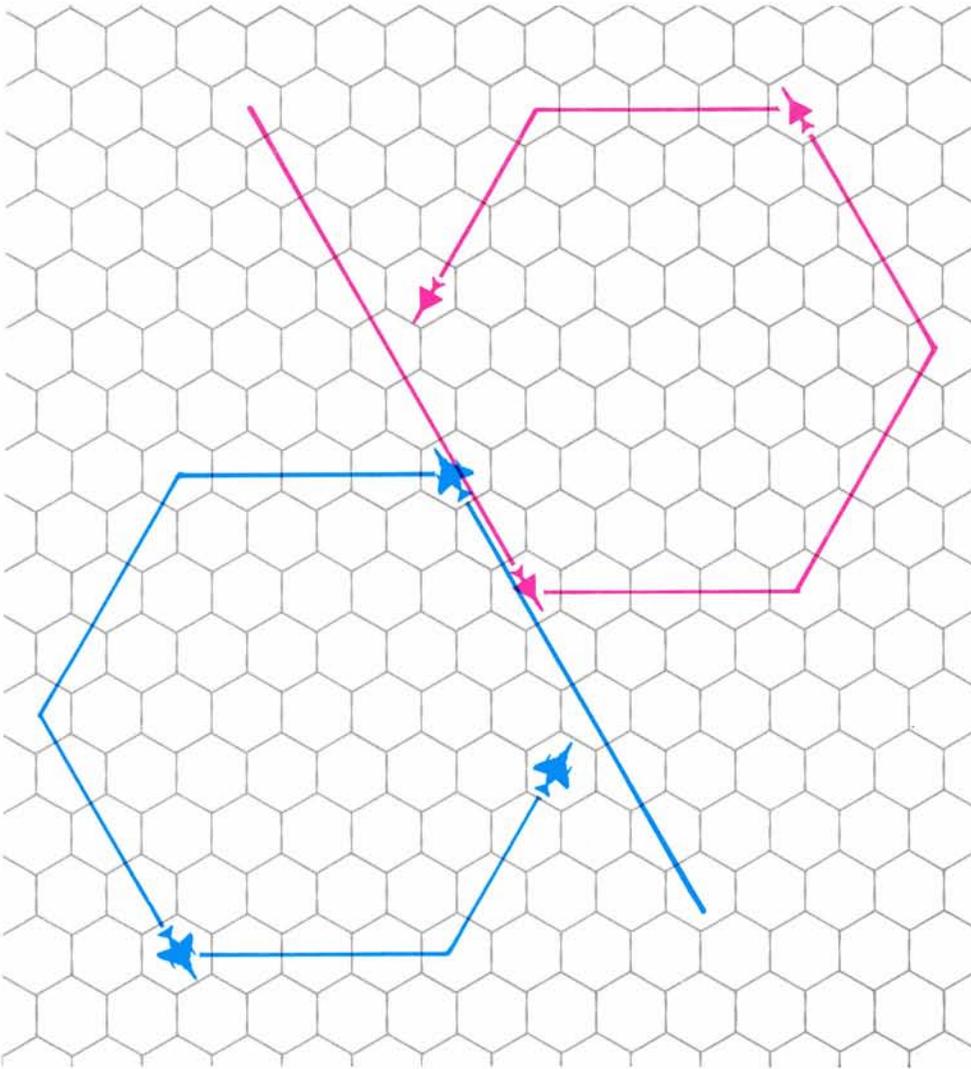
Figure 9: Two Circle Fight

The third and final option is for both aircraft to turn in the *same* direction (both left or both right) into what is called the Two-Circle Fight (see Figure 9). This option gives the wider turning aircraft a better chance, but may force both pilots to lose sight of each other. If either jet has all-aspect missiles, the two-circle fight may produce enough separation between the two jets to get off a head-on or "Lip Shot". If the tighter turning jet uses his turn rate to try for turning room, the wider turning jet may have the separation to point directly at him and deny him this advantage.

INITIAL MOVES: DEFEATING THE AMBUSH

Initial moves pre-suppose the worst—the bandit is past the merge and you don't have a controller, radar contact or Tally ho. You are now on the defensive, in a bad neighborhood, checking your wingman's 6 o'clock (and he is doing likewise for you). You begin by checking the common zone behind him, then move to the heat missile zones and beyond. You may pick up a small size bandit at minimum range, in your wingman's blind cone. Your first indication may be the missile in the air. The bandit has the advantages of position and surprise. Putting some of the lessons of BFM to work, you make your initial move to survive the attack, regain the initiative and kill the bandit.

The cardinal rule is to: ALWAYS TURN *TOWARD* THE BANDIT, *NEVER* TURN AWAY. Whatever side each jet picks up the bandit, that is the direction it should turn. Try for split-plane maneuvering; if one jet in your flight goes up, the

other should go down. This highly complicates the bandit's problem, both for maintaining visual contact and for maneuvering. He may decide to "Switch" and change his intended target. If the bandit is between the formation, then each flight member should turn toward each other. If the bandit is nearing a position of low aspect and angle-off, turn as tightly as possible to increase the angles. If the bandit's nose is off you and he is sliding back in range and stagnating in energy, dive and accelerate. If he is increasing in aspect and angle-off, keep turning—you are gaining angles on him. If he is attacking a wingman who is out in front of you, attack the bandit while your wingman performs a defensive turn. If you are being attacked, fly a defensive turn until your wingman can get turned around for an outside "Belly Entry" or another turning room maneuver.

Don't forget to plan for a separation, when it becomes appropriate. Don't continue to turn with a better turning jet—he's bound to get a quick advantage. Don't get into a vertical fight with a better accelerating jet—he can maintain a better energy state. If you are up against an adversary with both advantages, stay low. Take quick notes as you play or soon afterwards. Fighter pilots call this "Debriefing", and it is the only way you can put what happened into lessons you can remember and use next time. The more times you play, the better you will get!

FIGHTERSPEAK: The FLIGHT LEADER Vocabulary

The fighter pilot business, like any other specialized and technical profession, has its own unique language. If you were to listen to modern fighter pilots brief before flying, or talk on the radio, or be debriefed after flying their mission, you would hear a great many abbreviations, acronyms and "brevity code" that would be puzzling to your untrained ears, this hodgepodge of undecipherable jargon emanates from several sources. Some comes from abbreviations (usually of aircraft systems) and some from regulations. Other terminology arises out of the phonetic alphabet (*Alpha, Bravo, Charlie, Delta,* etc.).

Much comes from the brevity code, which is composed of individual words given unique and unequivocal meanings for the air combat arena. In many cases, a single word can mean the same as an entire phrase or sentence. During the tense seconds of an air engagment, with flight leaders and wingmen and radar controllers all needing to communicate, radio discipline can mean the difference between life and death. So finding the shortest way to convey the greatest amount of information is paramount. Try using the terminology below especially when you are playing more than one player to a side; try to limit your communication to only what is essential and use these words. Below is a representative assortment from various sources. More is contained in the accompanying article and the *FLIGHT LEADER* Pilot's Manual.

Abort: Discontinue. In the air, return to base due to unforseen circumstances.
Affirmative: Yes; also "Affirm", "Firm" or "Roger" used.
AI: Air Interceptor.
Angels: Target altitude in thousands of feet.
Arcing: Using "Cutoff" or Lead Pursuit.

Bandit: An enemy aircraft.
Beam: Put the threat off either wing.
Bingo: Fuel required to return home safely.
Blind: Can't see leader/wingman; opposite of "Visual".
Blow Through: Keep going at high speed; don't start turning.
Bogey: Unidentified aircraft; could be friendly or hostile.
Bogey Dope: Asking radar controller for target information.
Bracket: Usually an intercept or maneuver which puts friendly jets on both sides of a bandit so if he turns toward one, the other will have an advantage in turning room and angle-off.

Break: An instantaneous maximum performance turn, usually against a missile attack.
Bugout: Let's separate out of here; usually given with a direction—"Bugout West".
Burner: Afterburner(s), also "Blower" or "AB". An afterburner increases thrust by spray-injecting raw fuel into the hot aft stages of the jet engine to produce a sustained, controlled rocket-like explosion. Use of afterburner is not fuel-efficient and uses up fuel at a rate several times that consumed in Military power.
Buzzer: Electronic Countermeasures (ECM).

Check Six: Look at your six o'clock position (behind you).
Chicks: Friendly fighters.
Chicken: See "Jink", "Doin' the Chicken". Evolved due to the strain put on the neck during a guns jinkout from G forces.
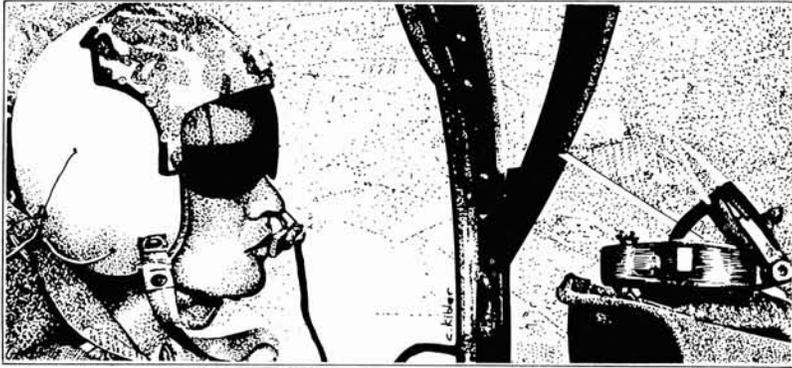*Conning*: Flying high enough that your vapor trail is crystalizing, like most airliners. Makes you very easy to see.
Contact: Radar contact.

Decoy: Attract fighters, usually into an ambush.
Drag: Target is turning in front of you—watch out for the ambush!
Driver: Pilot, as in "Eagle Driver" or "MIG Driver".

Electric Jet: F-16, referring to "fly-by-wire" computer flight controls.
Eyeball: The jet whose primary responsibility in an intercept is to get a "Tally Ho" on the bandit.
Extend: Fly straight to get distance, usually in a slight dive trying to gain speed.

Fence: The line separating friendly lines from enemy territory.
Fox I/II/III: Ordnance attack: radar missile/heat seeking missile/gun shot.
Foxtrot: Phonetic alphabet for AIM-7F.
Furball: A turning air combat engagement.

G: Force of gravity; see sidebar.
Gadget: Radar, may be "Sick" (degraded) or "Bent" (inoperative).
GIB: Guy In Back; Weapon Systems Officer in a two-place aircraft.
Gomer: Enemy pilot/soldier, or nickname for Aggressor.
Grape: An easy victory; little competition.

Hard Left/Right: A high-performance, energy-sustaining turn; not quite a "Break".
Heads Up: Warning to radar controller or flight that bandit got through.
HUD: Heads-up Display. Necessary information is displayed on combining glass (gunsight) so pilot doesn't have to look down into the cockpit during air combat.

Jam: Use electronic countermeasures or, sometimes, manuever to deny turning room.
Jink: Unpredictable defense against a gun attack.

Joker: Fuel state to trigger a separation for home, based on distance from home.
Judy: Aircraft is assuming control of intercept from radar controller.

Knock It Off: Stop the engagement—used in training.
Knots: Nautical Miles per Hour, the measure of airspeed.

Lag: I can't help you right now.
Lawn Dart: F-16, derogatory in referring to crashes during initial development and testing.
Lima: Phonetic alphabet for AIM-9 missile.
Lips: A head-on shot, usually near minimum range.
Lufbery: Named for Raoul, the WW1 ace. Refers to chasing each other around a circle in a stalemate.

Mike: Phonetic alphabet got AIM-9M missile.
Mil: Military power, 100% RPM. Most power available from jet engine without using the afterburner.
Music: Jamming or electronic countermeasures observed on radar.

Negative: No.
No Joy: I don't see bandit; opposite of "Tally Ho".

Padlock: I have a "Tally Ho", but can't look anywhere else or I might lose it.
Parrot: IFF, or Identification Friend or Foe transponder; tells radar controllers you are a good guy.
Popeye: I am in the clouds and can't search visually.
Press: Continue what you are doing; you are clear of threats, or I can support you.
Punch Out: Eject from aircraft.

Reno: Ability to discriminate multiple aircraft on the radar as the blips separate.
Raw: For RHAW (Radar Homing and Warning) or RWR (Radar Warning Receiver); tells pilot that someone has lockon to his aircraft and an approximate direction.
Rhino: The F-4 Phantom II nickname.
ROE: Rules of Engagement. Restrictions to combat.

SA: Situation Awareness; to know what is going on around you.
Snap: Snap vector, a quick heading to fly.
Spitter: Radar controller telling flight that an aircraft observed departing the "Furball".
Splash: Target confirmed destroyed.
Strangle: Turn off something.

Tally (Ho): I see the enemy aircraft.

Unload: Point the nose down to gain speed.

Viper: Nickname for the F-16 Fighting Falcon.
Visual: I see my leader/wingman.

Warp: Accelerate or high energy state.
Weeds: Minumum altitude, usually several hundred feet above the ground.
Winchester: Out of ordnance.
Winder: Short for Sidewinder or AIM-9 missile.

Zulu: Air Defense Alert.

PROJECT WARRIOR

By Capt. Matt Caffery, Jr.
TFWC TAC Warrior Project Officer

A group of Air Force officers are gathered around a map of a hostile shore. The mission is to knock out threatening land-based air forces so that the Navy will have a relatively free hand. The plan is to close the enemy runway with a small predawn attack, then with Combat Air Patrols unable to take off, the main attack will be delivered at dawn. The sergeant in the group points out how terrain can be used to mask our forces until the last moment.

The discussion is not centered on Libya, Grenada, the Falklands or the Kola Peninsula, but on the Solomon Sea. The subject, not current conflict or potential contingency, but the playing of *FLAT TOP*, Avalon Hill's simulation of 1942 air/sea battles in the Pacific. Although these airmen are officially off-duty, their activities are supported by the U.S. Air Force program—Project WARRIOR.

FLIGHT LEADER (subject of this issue) began as "Check Six!", published by the Air Force as part of Project WARRIOR. This begs the questions however: "What is Project WARRIOR and why is it interested in wargames?"

To understand what Project WARRIOR is, it helps to start at the beginning. The idea of the current program took shape during a conference of then Air Force Chief of Staff Lew Allen and the Air Force's major commanders. The conference's purpose was to identify the major long-range problems facing the Air Force. The concensus: an attitude shift was potentially our most harmful problem: a long term, gradual shift in the self-image of Air Force personnel. Fewer members were seeing themselves as warriors first; most were studying only their narrow disciplines. If this trend continued, it would diminish our ability to fight and, hence, to deter a fight.

The solution was to reverse this trend; but how do you shift attitudes? First, it was agreed the approach had to be positive, promoting spirit, not decrying jobism. Second, the program had to be voluntary; you cannot order people to be patriotic. Finally, commanders, from the top to the foundation of the chain of command, needed to personally use their leadership abilities to make the program go. From these principles, the basic definition of the program took shape:

Project WARRIOR is an Air Force wide program designed to install a war fighting/war winning spirit. Its specific goals are to increase the study of history, the understanding of the military art and the respect of military traditions. All Air Force leaders are to encourage voluntary participation.

It was the task of the first world-wide Project WARRIOR symposium to come up with specific tools to help commanders implement Project WARRIOR. As one of many brought in to speak to the symposium, my task was to convince the attendees that wargaming could support the program. The arguments I used then are essentially the ones I use today—

The first value of wargames is they're *fun*. It is much easier to get someone to volunteer to do something they enjoy. They are also very effective teaching tools. Think of all the information that is contained in a typical wargame: the geography of the battlefield, orders of battle, relative strengths, etc. Players tend to retain this information. Can't you close your eyes and see the mapboard of games you have not played in years? Wargames are even self-correcting. If you use poor tactics, your opponents will make it clear to you. Finally, wargames can be motivational. Their most valuable lesson is that victory and defeat are not inevitable, but in large part determined by the skill of the contending forces.

Apparently my pitch worked, because wargaming has been an integral part of WARRIOR from the start.

"Check Six!", or *FLIGHT LEADER* as you know it, also started with a pitch, a 10 January 1983 proposal from the designer, Capt. Gary "Mo" Morgan, myself and Capt. (now Major) Mark Thibeadou to Air Force Project WARRIOR for the development and publication of six wargames. These wargames would be structured in a building block fashion to illustrate air and combined air/land/sea warfare. Only "Check Six!" and "F.E.B.A." were fully developed and published. (Ironically, a game not accepted was a hypothetical United States invasion of Grenada.)

Today, Project WARRIOR reaches the troops in three basic ways and wargaming is an integral part of each. First are the specific Project WARRIOR activities such as guest speakers, wargame sessions, book discussions, lunch-time movies and trips to other installations. Next, there are a wide variety of materials available at each base library for individual use: books on military history and thought (including books on tape and condensed books), videos (feature length movies like "Midway", documentaries and, on some installations, video tapes of past speakers) and even Air Force art works. The final way Project WARRIOR is felt is through changes to existing programs without necessarily attributing these changes to Project WARRIOR. For example, increased emphasis on retreat ceremonies, staying fit to fight and increased use of wargames as an integral part of professional military education programs.

Project WARRIOR emphasizes this multi-level approach that integrates wargaming into the total program because WARRIOR believes multiple approaches are likely to reach the widest audience and, perhaps even more important, learning of war from a number of sources will produce a fuller understanding.

This belief is reflected in the *UpDate*, an unofficial Project WARRIOR publication. While focusing primarily on military wargaming, all aspects of Project WARRIOR are covered. Incidentally, if you are a member of the United States active, guard or reserve forces, you can write me (at 554 OSW/DEI, Nellis AFB, Nevada 89191) for a sample issue.

Both Project WARRIOR and the professional use of commercial and commercial-style wargames are continuing to reach an ever wider segment of the Air Force community. As both contribute to our ability to fly, fight and win, they also contribute to our chances of achieving that highest form of victory—just and lasting peace. ☆

"Top Gun" Scenarios

Undoubtably, if you like the subject matter in *FLIGHT LEADER*, you have already seen the recently-released movie, "Top Gun", or will be seeing it soon. The camera work in the movie is the ultimate visual experience depicting modern jet combat for those who can't actually fly in a front-line fighter. One of the most useful features of *FLIGHT LEADER* is its capacity to simulate nearly *any* jet air combat, either real (historical) or imaginary (in fiction); you need never run out of new scenarios to play, and each will be different. As a reader of The *GENERAL*, you can expect periodic updates to Orders of Battle and additional scenarios to enhance your investment in the game. It will never be "out of date"! To start things off right, this box features two new scenarios depicting the two most exciting air battles of "Top Gun". Zip up your flight suit, for your name tag now reads, "Pete Mitchell— Maverick".

25.10 NEVER LEAVE A WINGMAN: This is the training scenario from the Navy Fighter Weapons School at Miramar—"Fightertown, USA". "Maverick" and "Goose" (1A-181 ; this aircraft must have both experienced F-14 aircrew assigned) are flying cover for their wingmen "Hollywood" and "Wolfman" (in 2A-182). They desert them to get a crack at shooting "Viper" (1A-101), the school's ace commanding officer and so learn the value of flight discipline and mutual support.

25.10.1 MISSION PROFILES: Sweep vs. Sweep. Instructor controller (NE).

25.10.2 OPPOSING FORCES:
Students: Enter NW/Exit W. (58SP)
1st (1A-2A): 2 F14A (181-182)—MS:12; MA:17. 2/2/0.

Instructors: Enter NE/Exit E. (62SP)
1st (1A-2A): 2 A-4M (101-102)—MS:9; MA—14. 1/1/0.
2nd (3B-4B): 2 A-4M (103-104)—MS:9; MA—14. 0/2/0.

25.10.3 TERRAIN ALTITUDE: LG=1, DG=2, T=2, B=3.

25.10.5 RULES OF ENGAGEMENT: The F-14s carry 4 HW and the A-4s carry 2 HW missiles each. The Instructors' first flight must split on Turn 2, and "Viper" must go generally northwest while his wingman ("Jester"—2A-102) must go generally southwest. The Student's flight must also split on Turn 2, and "Maverick/Goose" must go generally northeast after "Viper" while "Hollywood/Wolfman" must go generally southeast after "Jester". The Instructors' second flight enters on Turn 4. Both sides may use any formations. No aircraft may make a penalty exit. Once you have played this scenario once, try it again but keep both F-14s *together* to see how it should have been done!

25.10.6 OPTIONS: Any (there should be few, if any, clouds and no haze). No countermeasures are carried.

25.10.7 VICTORY POINTS: No victory points. Play continues until aircraft 101 or aircraft 181 is eliminated, signalling automatic victory for the other side. Any other result is a draw.

25.11 "MAVERICK" TO THE RESCUE: This is the big "real world" Indian Ocean dogfight at the end of the movie. "Maverick" (1A-101), still devastated from losing "Goose" in a training

accident, gets ''back into the saddle'' (with ''Merlin'' now in the back seat) by coming to the support of ''Iceman'' and ''Slider'' (3B-183) who are desperately fighting for their lives against the MiGs who just shot down ''Hollywood/Wolfman'' (already off the mapboard).

25.11.1 MISSION PROFILES: United States CAP vs. Soviet Sweep. Both sides have controllers (United States SE, Soviet Union NW).

25.11.2 OPPOSING FORCES:
United States: 2nd flight Start Hex G9, Exit E. 1st flight Enter/Exit E. (72SP vs. MiG-21s; 60SP vs. MiG-29s)
1st (1A): 1 F-14A (181)—MS20; MA:17. 2/0/0.
2nd (3B): 1 F-14A (183)—MS:20; MA:17. 2/0/0.
Soviet Union: Enter/Exit W. (78SP for MiG-21s; 72SP for MiG-29s)
1st (1A-2A): 2 MG21C (811-812)—MS:18; MA:16. 0/2/0.
2nd (1B-4B): 4 MG21C (851-854)—MS:18; MA:16. 0/4/0.
or (alternative Soviet force)
1st (1A-4A): 4 MG29 (871-874)—MS:20; MA:19. 0/3/1.

25.11.3 TERRAIN ALTITUDE: All ''0''.

25.11.4 BOUNDARIES: Entire mapboard is neutral.

25.11.5 RULES OF ENGAGEMENT: The F-14s carry 4 HA, the MiG-21s carry 2 HW and the MiG-29s carry 4 HA missiles each. ''Maverick/Merlin'' are CAP relief and enter the mapboard on Turn 3. The United States aircraft may use any formations and the Soviet aircraft may use any formations except line abreast (tactical).

25.11.6 OPTIONS: Any. Countermeasures are carried. The scenario in the book/movie has at least one cloud deck (any desired altitudes). For alternate armament (if Option 18.3 is used), allow each F-14 to carry 2 AL, 3 RA and 2 HA and each MiG-29 to carry 4 RA or AM and 2 HA missiles each.

25.11.7 VICTORY POINTS:
Movie Victory: The F-14s must not be eliminated and must eliminate at least three MiGs to win. The MiGs must eliminate one F-14 and not lose three or more MiGs or eliminate both F-14s (with any MiG losses) to win. Any other result is a draw. No aircraft may penalty exit if these victory conditions are used.
Simulation Victory:
United States: 4 per eliminated, 1 per damaged and 2 per penalty exited MiG.
Soviet Union: If using the MiG-21s: 12 per eliminated, 3 per damaged and 6 per penalty exited F-14. If using the MiG-29s: 8 per eliminated, 2 per damaged and 4 per penalty exited F-14.

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AH Philosophy . . . *Cont'd from Page 2*

drawing boards for a year or more. The next step is often threat of a lawsuit. Small wonder then that publishers have felt the need to isolate themselves from unsolicited designs by the public and the nuisance lawsuits which occasionally accompany them. Many publishers would rather ensure the safety of their own in-house designs by rejecting *all* unsolicited inquiries sight unseen. My suggestion is to write to the Toy Manufacturer's Association (200 Fifth Ave, New York NY). Although they cannot tell you which, if any, publishers accept outside submissions, they can supply you with a list of manufacturers that you can contact.

1. Never send anything to a company unsolicited that you want to have returned. A company is under no legal (or moral) obligation to return

unsolicited photographs, rules, etc. And many companies understandably resent incurring the expense to return unsolicited materials and often destroy them outright.

2. Never send an unsolicited game or game components. Some companies will not even accept a package which they suspect is an unsolicited game. If at all possible they will return it unopened —or if it is opened by mistake, return it with a statement that it was seen only by a mail clerk. The first step is to send a letter of inquiry to see if the company will look at your game. If the answer is affirmative, they will usually send you a disclosure form to be signed and instructions on how to proceed. Thus armed, you will have escaped the dreaded status of being "unsolicited" and can make it past the mail clerk's round file to an actual audience for your game with that company's Research and Design people. Do not think that sending a signed disclosure form of your own making is a suitable passport for your game. It is not. Most companies will require that the disclosure form be their own and that it be issued solely for the game design in question—not as a carte blanche for you to submit games to them forevermore.

3. If you expect a reply to your letter of inquiry, be courteous enough to enclose a self-addressed, stamped envelope for the company's reply. After all, you are trying to sell them something. You may think this an unreasonable request, but consider why a company should be obligated to answer your unsolicited letter? If someone takes the time to answer your inquiry, the least you can do is spring for the stamp. Otherwise, don't complain when you don't get an answer. The next time you are infuriated about not getting a reply to your inquiry, stop and ask yourself how much of your junk mail you answer. Make no mistake about it, your letter is classified as "junk mail". (If you received as many inquiries trying to sell you something as these game companies do, you would consider it junk mail too.)

4. Don't send an obvious form letter. No one is going to take the time to look at your product if you couldn't take the time to write them an original letter. Nor is a publisher likely to be enthused in evaluating a game that is being sent elsewhere at the same time; the company probably has more submissions then it can possibly evaluate anyway and is not going to be predisposed to competing with another publisher for the rights to your game. Making threats like, "this super game is going to the first company to respond to my letter" only encourages the company to let someone else have it.

5. Make a good impression. If you haven't got the time or ability to produce a typed letter of introduction which is free of spelling/grammatical errors, you are not likely to fill the recipient with much hope that you can deliver a well-made game.

6. Have a complete product. Companies are not interested in paying you for an "idea". Ideas are the proverbial "dime a dozen". You should have a completely playable prototype in hand which you are willing to send to the company. Don't expect the company to make such a prototype from your specificiations—*you* must provide the hands-on equipment. The better that prototype is, the more likely that your game will be played and enjoyed . . . and given serious consideration. A playable prototype includes written rules. Do not assume that you can make a personal presentation to "show" how your game works. Many companies (Avalon Hill included) do not allow personal presentations.

7. Never tell a publisher that your game will be "great" after he has finished developing it for you.

If he has to finish it for you, why should he pay you for it? Your game must be thoroughly play-tested before submission to the point you feel it is as good as it possibly can be and is suitable for publication in the form you hand it in. You'll probably only get one chance to sell your game so be sure it is ready when that opportunity arises. Such playtesting should always include playing and criticism by several groups outside of your immediate circle of family and friends. In fact, no game can claim to have been adequately playtested until it has been played and endorsed by several groups of people unacquainted with the designer whose only experience with the game is that provided by a written set of rules. A game which is tested only by people whom the designer has "shown" how to play has not been tested at all.

8. Don't play guessing games. No publisher wants to be told how truly wonderful and innovative your game is but that you cannot describe it to him for fear of disclosing your "idea". No publisher in his right mind is going to sign anything other than his own disclosure form anyway, so you might as well give it your best shot and describe it as fully as necessary to pique the interest of that publisher. Otherwise, your secret will definitely be well protected—at the bottom of his round file.

9. Copyright. We cannot tell you what legal advice or protection is most advisable for you (that would get us in trouble with the legal profession). However, you should realize that your game is protected by copyright and common law simply by writing "Copyright", the year, and your name and address thereon. The filing of patents or the services of an attorney are usually needless expenses for all but the most lucrative of prototypes. While we cannot speak for other companies, the services of an attorney have never been necessary to sell a game to The Avalon Hill Game Company nor have they ever improved the chances of such a sale.

10. *LICENSING.* If your game involves subjects such as movie situations, living personalities, or fictional characters other than those in the public domain, the publisher will probably have to purchase rights to sell a game based on that subject from the organization involved. Such rights can be prohibitively expensive or even unattainable. Your chances of selling such a game to a publisher are much enhanced if you own or have already secured such licensing rights. Without them, there is little reason for a publisher to even look at your game unless it already has entered into such negotiations (in which case it probably already has a design of its own).

Should this advice and your own best efforts fail to procure a publisher for your game, there is only one alternative left—publish it yourself. Many publishers got their start this way and still more were able to sell their published designs to an established publisher after their published game achieved success on its own. The Avalon Hill Game Company has turned down designs in the past sight unseen which it later purchased after the games had been published under a private label. This course is not to be entered into lightly as it involves more expense and hard work than the typical game designer is willing to take upon himself. Selling games is not a particularly easy way to make a living and judging by the number of people trying to sell us designs it is far more difficult than the public perceives. For every millionaire created by the success of a *D&D* or *Trivial Pursuit*, there are dozens more who fail to recoup their investment. However, for those adventurous souls who firmly believe in their game, it can be a viable way—indeed the only way—to get it on the market. ☆

THE TROUBLE WITH ANGELS
More Aircraft for *FLIGHT LEADER*
### By S. Craig Taylor, Jr.

Almost without our realizing it, practical jet aircraft have been blackening runways and rattling windows for over 40 years. The propeller-driven fighter aircraft was the dominant air-to-air weapons system only from about 1915 to 1945 (30 years), while the jet fighter has already comfortably exceeded that period with no end in sight.

When I first started development work on *FLIGHT LEADER* (then called *Check Six!*), one of my first brainstorms (it seemed like a good idea at the time) was to expand the number of aircraft types to allow the game to present a sort of "history of jet fighters." The original game, in keeping with its purpose as a *modern* training aid for the Air Force, included only 34 types and concentrated on the newest and most advanced aircraft. As the scope of this expansion gradually sank in, I found that almost half of the non-playtest development time was expended on researching these addtional aircraft.

Although more work than had been originally anticipated, I feel that the extra effort was justified as *FLIGHT LEADER* now presents an interesting and coherent *history* of jet fighters at war. Players will find, as games from different eras are played, that, if they wish to win, tactics must be adjusted for the different aircraft and technologies involved. A Korean War scenario plays differently from a Vietnam War game which, in turn, differs from a conflict set in 1986. Familiarity with the game helps players to see and understand the major outlines of the effects of weapons on tactics and of tactics on weapons. Each new weapons system has led to the development of new tactics to exploit the new weapons followed by yet newer weapons systems to maximize the effects of the new tactics, and so on.

As usual, it is easy to get carried away on a project of this nature, and I overshot the mark by working up the game data for a number of aircraft that countermix limitations prevented including in the published game. The information for these aircraft is given below:
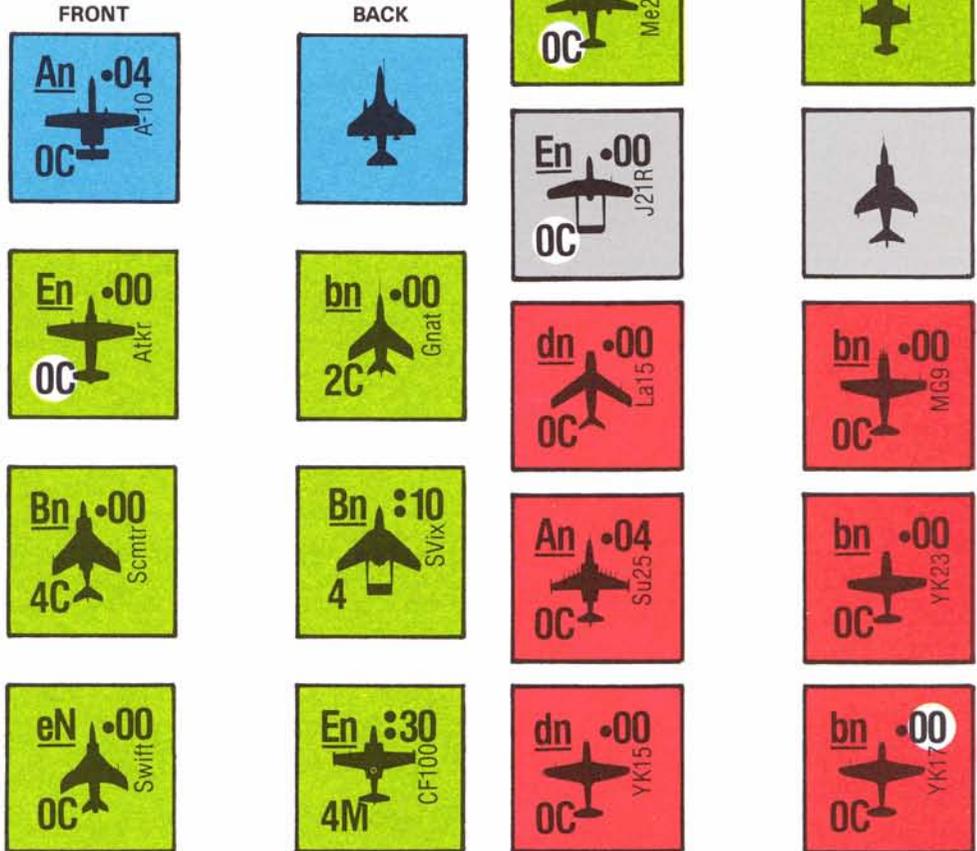
ADDITIONAL AIRCRAFT LIST

UNIT NAME	FULL NAME (MARKS REPRESENTED)	UNIT NO.	DATE	MS	MA	MSLS	UNIT INFORMATION CHANGES	PR US	A	B	C	D	E	F	NOTES
A-10	A-10A Thunderbolt II	301-304	75	5	11	0	----------------------	FB	9	8	7	6	5	4	713-USAF **a**
BLANK*	--	301-304	--	--	--	----	----------------------	--	--	--	--	--	--	--	Substitute
Atkr	Attacker F.1/FB.1	501-504	50	5	12	0	----------------------	FB	4	4	3	3	3	2	181-GB **b**
CF100	CF-100 Mk.3/4/5	521-524	52	9	15	4R	----------------------	AS	12	11	9	8	7	5	c.200-CA **c**
Gnat	Gnat/Ajit F.1	501-504	59	9	15	2-1	----------------------	FB	11	10	9	7	6	5	200-GB/IN **d**
Gnat*	Gnat T.1	501-504	59	9	15	0	C:2;M:0	FT	10	9	8	7	6	4	'' -GB **d**
Me262	Me-262A1a	531-534	44	6	11	0	----------------------	AS	4	4	3	3	3	2	c.1433-TR **e**
BLANK	--	531-534	--	--	--	----	----------------------	--	--	--	--	--	--	--	Substitute
Scmtr	Scimitar F.1	511-514	58	9	15	4-1	----------------------	AS	10	9	8	7	6	4	76-GB **f**
SVix	Sea Vixen FAW.1	511-514	57	8	14	4-1	----------------------	FB	13	12	10	9	7	6	114-GB **f**
SVix	Sea Vixen FAW.2	511-514	63	9	14	4-6	----------------------	FB	14	12	11	9	8	6	15-GB **f**
Swift	Swift FR.5	521-524	55	8	8	0	----------------------	RC	8	7	6	5	5	4	62-GB **f**
J21R	J/A-21R	651-654	49	7	12	0	----------------------	FB	5	5	4	4	3	3	60-SW **g**
BLANK	--	651-654	--	--	--	----	----------------------	--	--	--	--	--	--	Substitute
La15	La-15 FANTAIL	931-934	49	8	14	0	----------------------	FB	8	7	6	5	5	4	c.200-USSR **h**
MG9	MiG-9 FARGO	931-934	46	8	13	0	----------------------	AS	9	8	7	6	5	4	c.550-USSR **h**
Su25	Su-25 FROGFOOT	941-944	83	7	12	0	----------------------	FB	9	8	7	6	5	4	In prod.-USSR **h**
YK15	YaK-15 FEATHER A	951-954	46	7	13	0	----------------------	AS	7	6	6	5	4	3	c.400-USSR
YK17	YaK-17 FEATHER B	951-954	47	7	13	0	----------------------	AS	8	7	6	5	5	4	c.700-USSR
YK23	YaK-23 FLORA	941-944	48	8	16	0	----------------------	AS	9	8	7	6	5	4	c.300-USSR

NOTES: a. A missile load of "2-3" is currently proposed, but not presently carried. Scenario points with "2-3" armament are "13-12-10-9-7-6." Because of the huge gun carried by the A-10, it can also be fired from two hexes directly behind a target and co-altitude with a "PK6." This gun never causes damage—it always eliminates with a hit. Used only by the U.S.A.F. **b.** Used by Great Britain and Pakistan. **c.** Used by Belgium (Mk.5 only) and Canada. **d.** Used by Great Britain, Finland and India. **e.** Used by the Third Reich in the closing days of World War II. **f.** Used only by Great Britain. **g.** Used only by Sweden. **h.** Used only by the U.S.S.R. **i.** Used by Bulgaria, Czechoslovakia, Poland and the U.S.S.R., **j.** Used by Czechoslovakia, Poland and the U.S.S.R.
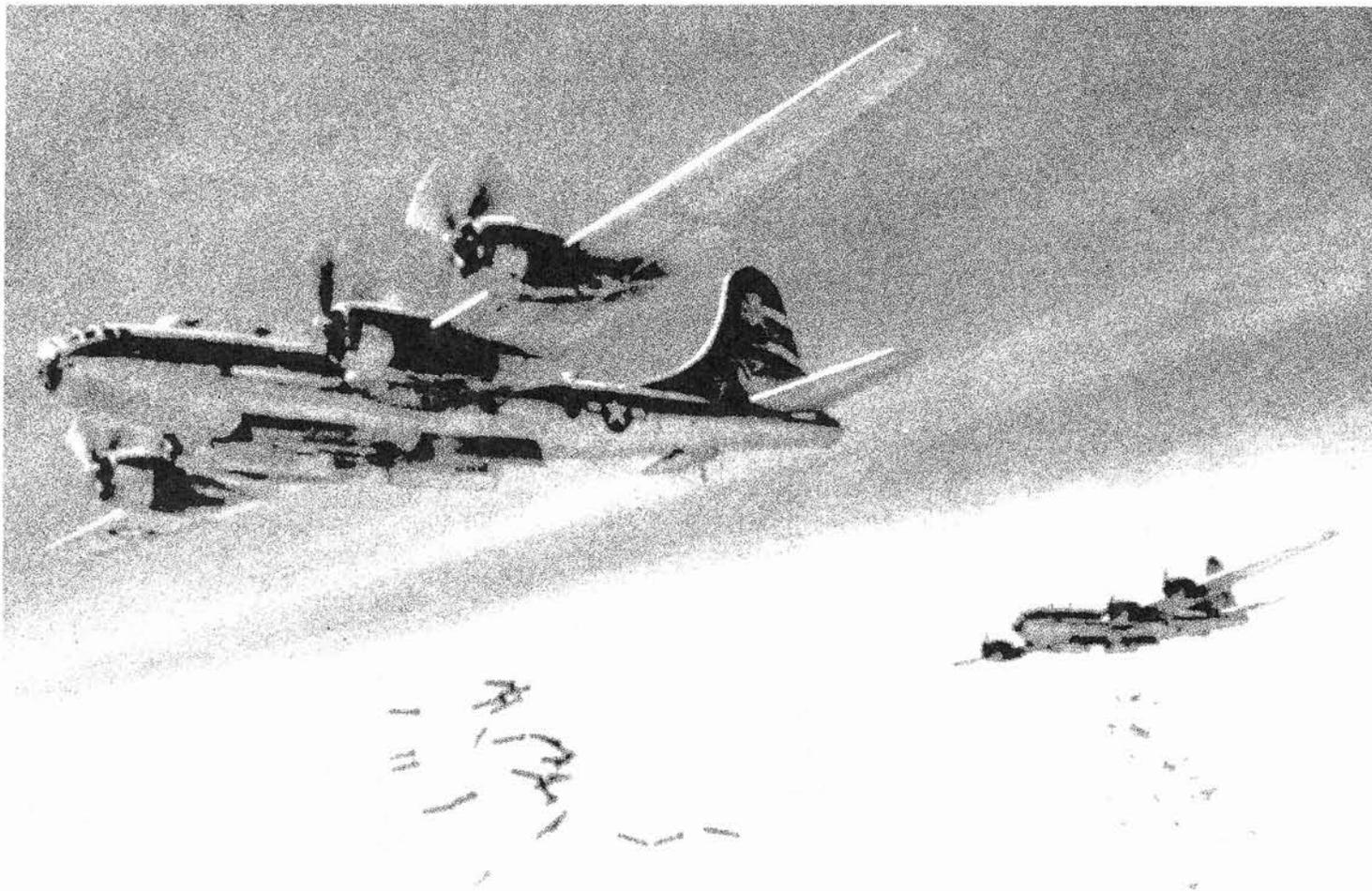
IN DEFENSE OF NIPPON
Three New Japanese Fighters for DAUNTLESS
By Leighton Kato

During the latter half of the Pacific War, Japan started to introduce fighters whose purposes were more defensive than offensive in nature. Unlike the Mitsubishi A6M *Zeke* or the Nakajima Ki-43 *Oscar*, whose fortes were maneuverability and range, these newer fighters stressed speed, firepower, climb and pilot protection. Examples of this change in fighter design philosophy can be found in the plane cards of both the Kawanishi N1K1-J *George* and the Nakajima Ki-44 *Tojo* in the *AIR FORCE* system.

However, there were other less numerous Japanese fighters that were encountered by Allied forces as they moved closer to the Home Islands of Japan. Three of these rare birds are introduced in this article: the Kawasaki Ki-100 Goshiken, the Mitsubishi J2M Raiden *Jack* and the Nakajima J1N1 Gekko *Irving*.

Ironically, the Kawasaki Ki-100 Goshiken (Type 5 Fighter) was never meant to be created. It was only through a unique set of circumstance that it was given birth. By late summer 1944, a stockpile of airframes for the Kawasaki Ki-61 II Kai (modified) *Tony* was starting to accumulate at the Kagamikahara factory. These airframes were awaiting the delivery of the HA-140 powerplant that was delayed due to both inspection and low production output. The Japanese Army Air Force (JAAF), short of both pilots and aircraft, ordered Kawasaki to convert the Ki-61 II Kai's airframe to take a *radial engine*. Takeo Doi, designer of the *Tony*, was firmly against this since the engine chosen—the Mitsubishi

HA-112 II—had a diameter of *48 inches* versus the Ki-61's airframe diameter of only *33 inches*! However, there was no other choice but to modify the airframe to fit the oversized 1500 hp engine. So, within a remarkable five months, the first two Ki-100 prototypes were flying. The remaining 200 Ki-61 II Kai airframes were converted into Ki-100 KO (Ki-100a) aircraft.

Although slower than the Ki-61 II Kai, the Ki-100 was much more maneuverable with a better climb rate, thanks to being over 600 pounds lighter in its loaded form than a standard *Tony*. It also carried more ammunition than a *Tony*, having 250 RPG in both its fuselage-mounted 20mm HO-5 cannon and wing-mounted HO-103 12.7mm machine guns. It also had an advantage that its liquid-cooled engined half-brother did not have: its engine was reliable.

First introduced in March 1945 with the 18th Fighter Sentai, the Ki-100 gained fame with the crack 224th Fighter Sentai, downing seven F4U *Corsairs* and 12 to 22 F6F *Hellcats* in two large separate dogfights over Okinawa and Japan during June and July respectively with minimal loss to themselves. Eventually, seven fighter Sentai were either converted to or being converted to the Ki-100 when the war ended.

Although a reliable and superior dogfighter to almost any Allied fighter seen over Japan (save, perhaps, the North American P-51D *Mustang*), it was unable to effectively intercept the Boeing B-29 *Superfortresses* laying waste to Japan since it was

basically a low-to-medium altitude fighter, not a high altitude interceptor. However, Kawasaki was in the process of creating the Ki-100 II, which had a fine high altitude performance when the war ended. Kawasaki produced less than 400 of the Ki-100 series, of which 30% of the production run was the bubble-topped Ki-100 OTSU (Ki-100b).

Since it was introduced so late in the war, no Allied nickname was ever given to it. When encountered, it was generally identified as either the Kawanishi *George* or the Nakajima *Frank*. However, it was labelled by both friendly and enemy pilots as one of the best Japanese fighter planes ever to be fielded. Not bad for a plane that was never meant to be!

The Mitsubishi J2M3 Raiden (or "Thunderbolt") was born as early as 1938 as a design study for a new point defense interceptor. Developed and built by the creator of the A6M Zero, Jiro Hirokoshi, the prototype J2Ms suffered numerous technical and engine problems, and these problems forced the delay of the J2M till its service debut over the Marianas in the summer of 1944. Codenamed *Jack* by the Allies, the Raiden had a heavy armament of four 20mm cannons with 200 RPG. Field modifications led some Raidens to have one or two extra 20mm cannons installed in a "Schage Musik" position in the rear fuselage behind the pilot compartment. The plane had a better high altitude top and climb rate than either the Kawanishi *George* or the Nakajima *Frank*—having a top speed of 363

MPH at 17400 feet and climbing 20000 feet in a little over six minutes.

Its weak points were found in both its powerplant and lack of effective protection for its pilot and fuel tanks. The engine, the Kasei (Mars) radial of 1575 horsepower, was very temperamental and very unreliable. The pilot protection consisted of a 8mm armored headrest and an overhead pylon to protect the pilot in the event of a turnover. Its fuel tank protection was a rubberized fuselage tank and a carbon-dioxide fire extinguishing system for its fuselage and unprotected wingroot tanks. It also had a very short full power endurance of but 45 minutes.

Despite all this, the *Jack* was a very good bomber destroyer and B-29 crews were always on the lookout for "fat Jack". Luckily for the Allies, only 500 J2Ms of all types were built.

The Nakajima J1N1-S Gekko ("Moonlight") was developed in the early 1940s as an entry in the Imperial Japanese Navy's specifications for a long-range heavy fighter. The prototype J1N1 suffered from poor maneuverability due to its novel (and complex) twin dorsal gun barbettes, each housing two 7.7mm machine guns.

Despite its failure as a heavy fighter, the Japanese Naval Air Force (JNAF) ordered the speedy J1N1 as the reconfigured J1N1-C Type 2 Reconnaissance Aircraft, Model 11. It was introduced into this role during the Solomons campaign. In the spring of 1943, shortly after its debut, a Commander Yasuna Kozono of the 251st Air Corps modified some J1N1-Cs to intercept the nightly B-17 and B-24 raids that flew over Rabual. By mounting two 20mm cannon at an upward angle of 30° and a similar pair firing 30° downwards, he and his fellow pilots would fly underneath or above the four-engined night raiders and succeeded in downing two B-24s on their first mission.

Hearing of this, Nakajima in August 1943 started production of the J1N1-S Gekko Night Fighter, Model 11. The crew on the J1N1-S numbered two, as compared to three in the earlier stages. The J1N1-S has the same armament set-up as the converted J1N1-Cs that were made by Commander Kozono with some of them having either a small nose searchlight or primitive Air Interception radar. Primarily, the J1N1 nightfighters (codenamed *Irving* by the Allies) formed the backbone of Japan's nightfighter defense. For a time, the *Irving* also formed part of the daylight defense cover as well as maintaining its nocturnal responsibilities. However, like most Japanese fighters, the *Irving* could not catch the American B-29s except during low-level night and day fire bombing raids. A total of 470 J1N1s of all types (and nine prototypes) were produced before the end of the air war over Japan.

Despite the limited time these three fighters served for Japan, it is hoped by this author that these little known planes will be a welcomed addition to your Japanese *DAUNTLESS* arsenal.

Scenario 12—Interception Over the Choshi Peninsula

United States: nine B-29s (loaded) at 28000 feet, speed 5, level bank. Enter from board edge ½ on Turn 1.

Japan: three J2M3s at 30000 feet, speed 7, level bank. Set-up anywhere on Boards III and/or IV, direction 1.

Victory Conditions

The American player must have six undamaged, loaded B-29s fly off boards V and/or VI.

The Japanese player must, without loss to the J2M3s, shoot down at least one B-29 or damage three B-29s with either one of the following combinations:

a) inflict seven wing and/or fuselage hits

b) inflict two cockpit hits, one fuel line hit, and one entire engine out of action

Should neither of these situations occur, or should both occur, the scenario ends in a draw.

Special Rules

Use all Optional Rules found in *AIR FORCE* and *DAUNTLESS*.

Each J2M3 has one 3C cannon with three ammo. Range is four hexes and these are a "FH" weapon. Weapon adds +1 to all maneuvers.

B-29's tail gun is treated as an "8" strength gun, thus superseding Rule XIV, Gun Positions, Flexible. It does not, however, have a +1 fire modifier (not on computerized gun system). See "F" gunnery play for night raider variant of B-29 for tail gun arc areas.

B-29s have four less flexible gunnery points in the following areas: "H" (all) and "M" (all). This is intended to simulate the absence of the quad .50 caliber machine gun turret mounted directly above and behind the cockpit of the B-29A. The B-29s in this scenario mounted only two .50 calibers in the position.

Use the following pilot characteristics for the J2M3s: #1, TRV and +1 on BHT (Ace); #2, none (Average); #3, none (Novice). See *AIR FORCE*, Rule XIX, "Training and Experience" for further explanation.

The scenario continues until all B-29s have exited the mapboard area.

Commentary

On 2 February 1945, Lt. Teramura and pilots of the 302nd Kokutai (Naval Air Corps) based at Atsugi airbase jumped a nine-plane formation of B-29s from the 24th Squadron, 6th Bomber Group (based on Tinian). Diving from 30000 feet, Teramura and one of his wingmen mortally wounded one B-29 after expending all their ammunition. The Superfortress never made it back to base. But Teramura and both of his wingmen suffered heavy damage to their aircraft. The Superfortresses didn't die easily.

Scenario 13—Endo on the Prowl

United States: six B-29s (loaded) at 24000 feet, speed 4, level bank. Use same set-up as "Superfortress Night Raid" scenario in *DAUNTLESS*.

Japan: three J1N1-S at 25000 feet, speed 5, level bank. Use same set-up as "Superfortress Night Raid".

Victory Conditions

Same as those found in "Superfortress Night Raid" in *DAUNTLESS*.

Special Rules

Use all Optional Rules found in *AIR FORCE* and *DAUNTLESS*.

Unlike "Superfortress Night Raid", retain all armament on the B-29s. In addition, implement special rule regarding B-29 tail gun found in Scenario 12 above. Finally, do not give +1 fire modifier to any of the B-29 gun positions.

Use the following pilot characteristics for the J1N1s: #1, ETRV +2 on BHT (Ace); #2 and #3, none (Average). See *AIR FORCE*, Rule XIX, "Training and Experience" for further explanation.

The scenario continues for 20 game turns.

Commentary

On 20 August 1944, 60 B-29s bombed targets in Kyushu and western Shikoku. The one confirmed kill of a B-29 in this raid fell to the guns of Lt. Sachio Endo over Yawata. An experienced night

fighter, Endo got his experience flying against night raiding B-17s and B-24s over Rabual, having amassed at least ten kills. He did not survive the war, being shot down on 14 January 1945 over Nagoya. At that time he had added six confirmed B-29 kills.

Scenario 14—Dogfight over Okinawa

United States: six F4U-1A Corsairs at 19000 feet, speed 8, level bank. Enter on Boards 1 and/or 2.

Japan: four Ki-100Ia at 20500 feet, speed 5, level bank. Set up on Board V, A-8 through N-8 inclusive, direction 1.

Victory Conditions

Each side gets points for aircraft shot down (as in *AIR FORCE*, Rule XXII). In addition, the US player is awarded 10 points for each F4U which exits off Boards V and/or VI from game Turn 9 through 15. To qualify, however, F4Us must exit with less than half damage to any aircraft area (round down), have half their ammunition remaining, and be between 17000 and 19000 feet when exited. (These requirements simulate getting past the Ki-100 escort in shape to hit the Kamikazes flying "behind" the fighter screen.)

Special Rules

Use all Optional Rules found in *AIR FORCE* and *DAUNTLESS*.

Use the following pilot characteristics for the F4Us: #1, TTRV +1 on BHT (Ace); #2, ETRV (Average); #3, ETV (Average); #4, ETU (Average); #5, T (Average); #6, T (Novice). See *AIR FORCE*, Rule XIX, "Training and Experience" for further explanation.

Use the following pilot characteristics for the Ki-100s: #1, TRV +2 on BHT (Ace); #2, TR +1 on BHT (Ace); #3, TV (Average); T (Novice). See *AIR FORCE*, Rule XIX, "Training and Experience" for further explanation.

The scenario continues for 15 game turns.

Commentary

On 3 June 1945, U.S. Navy F4U-1s clashed with a Kamikaze flight escorted by Ki-100s of the Japanese Army Air Force's crack 244th Fighter Sentai over Okinawa. Although outnumbered, the Japanese pilots shot down seven enemy planes without loss to themselves.

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15TH AIR FORCE
A Variant for B-17
By Lawrence Cirelli

The 15th Air Force was activated on 1 November 1943 under the command of Major-General Jimmy Doolittle. Bomber and fighter groups had been transferred from the 9th and 12th Air Forces to form the new command. The 15th was intended to supplement the Combined Bomber Offensive against Nazi Germany. Besides hitting targets beyond the the range of the 8th Air Force, it was hoped that during the winter months the supposedly warmer climate of the Mediterranean would allow the 15th to bomb targets twice as often as the socked-in 8th. Unfortunately, the weather never did cooperate. During the first two months of operations (Nov—Dec 1943), weather conditions forced the 15th to fly most of its missions against Italian targets while hitting only eleven of the priority German targets. And during the first two months of 1944, only four German targets were hit in January and ten in February.

Operations began with four B-17 groups (the 2nd, 97th, 99th and 301st), two B-24 groups (98th and 376th), three P-38 groups (1st, 14th, 82nd) and one P-47 group (325th). Five medium bomber groups were temporarily assigned until the end of 1943, when they were returned to control of the 12th Air Force. The maximum size of the 15th Air Force was set at 21 bomber groups and seven fighter groups. Early missions were flown from airfields in Tunisia, but from mid-November on the 15th moved its permanent airfields to Italy. (Refer to the map accompanying this variant.)

The 15th Air Force's top priority was the destruction of the Luftwaffe followed by attacks on targets high on the Combined Bomber Offensive list. The 15th was also assigned the task of assisting the offensive in Italy, attacking German positions in the Balkans, and softening up targets in preparation for the invasion of southern France.

The first mission was flown on the day of activation against two Italian targets—the La Spezia Naval Base and a railroad bridge at Vezzano. (Among the attacking forces were B-17s from the 97th Bomb Group; as one of the oldest groups in the European Theater, the 97th had also taken part in the first heavy bombing raids of the 8th Air Force and of the 12th Air Force.) On the following day, the 15th flew its first mission against a strategic German target when B-17s and B-24s attacked the Messerschmitt factory in Wiener-Neustadt, Austria. Results were good, but not without cost. During its 18 months of operation, the 15th Air Force flew 148,955 heavy bomber sorties, dropping 303,842 tons of explosives. Its targets were located in twelve countries. During the "Big Week", between 20th and 25th February, the 15th flew 500 sorties. It lost some 92 bombers in this concerted Allied attempt to smash the German aircraft industry. From April through August 1944, the 15th sent 5479 bombers on 19 missions against Ploesti, Rumania (13469 tons of bombs dropped with a loss of 223 bombers). On 24 March 1945, the 15th flew its first mission against Berlin. Over 150 B-17s took part in this raid on the Daimler-Benz tank engine works. By the war's end, the 15th Air Force had destroyed one-half of the German fuel production and transport systems in Occupied Europe, as well as its share of enemy fighters.

For this variant, we are concerned with the missions of the 5th Bomber Wing, which flew B-17s from January to April 1944 (the time span of our game). It was the time when General Ira Eaker (Commander of the Mediterranean Allied Air Forces) referred to the 15th as a "pretty disorganized mob". It is also the period which most closely parallels the mission conditions of B-17, QUEEN OF THE SKIES for the 15th Air Force in terms of fighter opposition and crew training.

During these four months of 1944, the B-17s of the 5th Bomb Wing were mainly committed to hit targets in Italy and the Balkans. Operating from airfields around Foggia, 75% of the 5th's targets were rail yards, enemy airfields and aircraft related industries. Besides flying sorties during the "Big Week", the 5th Bomber Wing was called upon in February and March to provide ground support for Allied forces at Anzio and Monte Cassino. The 5th also took part in the April raids on Ploesti; although known for its oil complex, these first raids were conducted against the city's rail yards.

By the end of April 1944, General Eaker was happily reporting the improved performance of the 5th Bomber Wing and the entire 15th Air Force. Eaker credited this improvement to better organization, and the lack of heavy fighter opposition (which was being concentrated against the 8th Air Force during this period).

MISSION TARGETS
Missions 1-25
Roll 2D.

ROLL	TARGET	TYPE
11	Anzio*	Ground Support
12	Aviano	Airfield
13	Belgrade	Airfield
14	Belgrade	Rail Yard
15	Brod	Rail Yard
16	Brod	Rail Yard
21	Bucharest	Rail Yard
22	Budapest	Aircraft
23	Fiume	Oil
24	Klagenfurt	Airfield
25	Klagenfurt	Aircraft
26	Maribor	Aircraft
31	Mostar	Airfield
32	Nis	Rail Yard
33	Nis	Rail Yard
34	Piraeus	Dock Yard
35	Ploesti	Rail Yard
36	Ploesti	Rail Yard
41	Pola	Dock Yard
42	Regensburg**	Aircraft
43	Reggio Emilia	Rail Yard
44	Rimini	Rail Yard
45	Rome	Airfield
46	Rome	Rail Yard
51	Sofia	Rail Yard
52	Sofia	Rail Yard
53	Steyr**	Aircraft
54	Toulon**	U Boats
55	Turin	Industry
56	Turin	Rail Yard
61	Udine	Airfield
62	Verona	Rail Yard
63	Verona	Rail Yard
64	Villaorba	Airfield
65	Wiener-Neustadt	Aircraft
66	Zagreb	Airfield

* Subtract −3 from die roll for flak occurrence over target, Table O-2
** Add +1 to die roll for flak occurrence over target, Table O-2

Rules Changes

The following are the changes in the rules for B-17, QUEEN OF THE SKIES to accomodate this variant. Except for the specific alterations made below, all other rules for play are in force.

I. B-17G

The B-17G (with chin turret) started to arrive in the European Theater in September 1943. In this variant, the player begins his missions flying the game's standard B-17F model. However, if his bomber is lost in action or irrepairably damaged, it is replaced with the B-17G model. The following rules (as adapted from James Meldrum's "The Rest of the Royal Family" in Vol. 20, No. 6 of The GENERAL) reflect the B-17G performance:

1. The chin turret has twin guns and may fire at German fighters attacking from the following positions: all levels of 12:00; 10:30 Level and Low; and 1:30 Level and Low.

2. A German fighter is hit with a die roll of "5" or "6" from this gun position.

3. German fighters attacking from the 12:00 High position may not knock out the chin turret.

4. The chin turret is affected by all other hits that would normally affect the bombardier or nose gun.

5. The ammo supply of the chin turret is the same as that of the nose gun.

II. Pre-Mission

Follow the normal Pre-mission steps except for the following. To begin a mission, place the B-17 counter over Foggia, Italy in Zone 1. There is only one Mission Target City Table to roll on instead of three; use it for all 25 missions.

III. Alterations to Tables

1. Revisions to the Mission Target Tables (G1, G2 and G3). When called upon, roll two dice with results applied to the new accompanying Mission Target Table.

2. Revisions to the Flight Log Gazetteer (G-11). When target has been determined, refer to the new accompanying Flight Log Gazetteer.

3. Although the longer ranged P38Js and P-51s started to appear in Europe in 1944, the 8th Air Force was given priority in receiving these "long-legged" fighters. These aircraft would not become operational with the 15th Air Force until May 1944. As a result, fighter cover was not as good on long ranged missions. Use the following revised table to replace the Fighter Cover Table (G-5). Fighter cover is extended to cover all eight zones however.

DIE ROLL

ZONES	POOR	FAIR	GOOD
1-5	1-2	3-4	5-6
6	1-2	3-5	6
7-8	1-3	4-6	—

4. Regarding Bailouts and Landings, the following rules are applied:

A. If a crew member bails out and lands unhurt or survives a forced landing in France, Italy, Yugoslavia or Greece, he will be returned in time for the next mission by the Underground or Partisans on a die roll of "6" (see Note d, Table G-7 and G-10).

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RUSSIA

POLAND

GERMANY

CZECHOSLOVAKIA

Regensburg

ZONE 8

Wiener-Neustadt

Steyr

AUSTRIA

SWITZERLAND

FRANCE

Turin

Toulon

ZONE 8

HUNGARY

Budapest

Klagenfurt

Maribor

Zagreb

Aviano
Villaorba
Udine
Fiume
Pola

Verona

Reggio
Emilia

Rimini

ITALY

CORSICA

SARDINIA
ZONE 5

ZONE 6

MEDITERRANEAN SEA

ZONE 7

ADRIATIC SEA

ZONE 1

Foggia

15th Air Force Base

No German Attacks

ZONE 2

Rome
Anzio

ZONE 3

ZONE 4

SICILY

YUGOSLAVIA

ZONE 2

ZONE 3

Brod

Mostar

ZONE 4

ALBANIA

Belgrade

ZONE 5

Nis

ZONE 6

ZONE 7

RUMANIA

Ploesti
Bucharest

BULGARIA

Sofia

GREECE

AEGEAN SEA

Piraeus

T U R K E Y

FLIGHT LOG GAZETTEER

TARGET CITY	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6	ZONE 7	ZONE 8
Anzio	−2/I						
Aviano	−2/W	−1/W	0/W-I	+1/I			
Belgrade	−2/W	0/W	0/Y	0/Y			
Brod	−2/W	0/Y	0/Y				
Bucharest	−2/W	0/Y	0/Y	0/Y	0/B-R	0/R	0/R
Budapest	−2/W	0/Y	0/Y	0/H	0/H		
Fiume	−2/W	−1/W	0/I				
Klagenfurt	−2/W	−1/W	0/Y	0/A			
Maribor	−2/W	−1/W	0/Y	0/Y			
Mostar	−2/W	0/Y					
Nis	−2/W	0/Y	0/Y	0/Y			
Piraeus	−2/W	−2/W	−1/W	−1/W-Gr	0/Gr	0/Gr	
Ploesti	−2/W	0/Y	0/Y	0/Y	0/B-R	0/R	+1/R
Pola	−2/W	−1/W	0/Y				
Regensburg	−2/W	−1/W	0/W-I	0/I	Alps	+1/G	
Reggio Emilia	−2/W	−1/W	0/W-I	0/I			
Rimini	−2/W	0/I					
Rome	0/I						
Sofia	−2/W	0/W-Al	0/Al-Y	0/Y-B	0/B		
Steyr	−2/W	−1/W	0/I-Y	Alps	+1/A		
Toulon	−2/W	−2/W	−1/W	−1/W	−1/W	0/F	
Turin	0/I	−1/W	−1/W	−1/W	0/I		
Undine	−2/W	−1/W	0/W-I	+1/I			
Verona	−2/W	−1/W	0/W-I	0/I			
Villaorba	−2/W	−1/W	0/W-I	+1/I			
Wiener-Neustadt	−2/W	0/Y	0/Y	0/Y−A	+1/A		
Zagreb	−2/W	0/Y	0/Y				

German Fighters attack over the Alps in good weather only.

A—Austria; Al—Albania; B—Bulgaria; F—France; G—Germany; Gr—Greece; H—Hungary; I—Italy; R—Rumania; Y—Yugoslavia; W—Water.

B. If a crew member bails out and lands unhurt or survives a forced landing in Germany, Austria, Hungary, Bulgaria, Rumania or Albania, he is automatically captured (see Note c, Table G-7 and G-10).

C. If a crew member bails out and lands unhurt or survives a forced landing in Zone 1 (Allied-controlled Italy), he is automatically ready for the next mission. Seriously wounded crew members roll on Table Bl-4 Wounds, Note b.

D. If a crew member bails out over the Alps, roll one die: 1-5—dies of cold and exposure, 6—rescued but captured by Germans.

E. If B-17 force lands in Alps, plane is destroyed and all aboard KIA.

F. If B-17 landing on land in other than Zone 1, modify landing Dice Roll by −3.

IV. Strategic Movement Board

The board accompanying this article depicts a map of southern and central Europe. Missions will take the player's B-17 to 27 cities (including five capitals) in nine countries.

V. The Alps

1. There are two missions that require a B-17 to fly over the Alps—Steyr and Regensburg. Consult the Flight Log gazetteer to see in which zone the bomber must cross the mountains.

2. A B-17 that must descend to 10000 feet for any reason does not have the altitude to cross over the Alps.

3. In case of "Heat Out", a B-17 can re-climb to 20000 feet to pass over the mountains (still out of formation), but each affected crew member must roll for frostbite. The B-17 may return to 10000 feet after crossing the Alps.

4. If the B-17 must stay at 10000 feet because of "Engine Out" or "Oxygen Out" it must either abort the mission (if unable to reach the target) or the crew must bailout or land the plane if unable to recross the Alps on the return leg.

5. If damage to the B-17 requires descending to 10000 feet while over the Alps, the crew may bailout (except the crewman flying the plane) and the plane must crash with the pilot still aboard.

VI. Weather

1. In all cases except over the Alps, treat weather as in the normal game.

2. When a B-17 enters the zone in which it must fly over the Alps, the player rolls for Weather Conditions *in that zone only* on Table O-1. Whatever weather conditions exist on the outward leg remain in force for the return leg.

A. If the weather is bad, severe icing conditions prevail and the mission is aborted immediately.

B. If the weather is poor, the player has the option of continuing with mission or aborting. If the decision is made to continue, the B-17 flies through dense cloud cover and snow. Player rolls two dice: 2-9—B-17 survives passage unharmed; 10-12—pilot errs and flies into mountainside (bomber is destroyed and all aboard KIA). Player must roll again on return leg.

C. If weather is bad or poor, *NO* attacks are made by German fighters.

D. If weather is good, roll one die; on a die roll of "6" only one fighter wave will appear. German fighters may make one attack regardless of attack results; no attacks from Vertical Climb or Vertical Dive positions are allowed (disregard if rolled).

E. If a mission is aborted because of weather over the Alps, it still counts toward the required 25 missions of the Campaign Game.

☆

HITLER IN MONTE CARLO
Effects of Research in HITLER'S WAR

By Steve Estvanik

As personal computers become more prevalent, more strategies can be investigated for boardgames than could be tested simply by playing the game as in the past. The games with the greatest potential are those which require decisions based on many variables, usually with some random chance thrown in. These games do not easily convert to simple tables and charts giving definitive answers of the "always attack with 3:1 odds" sort of strategy. Instead a more subtle approach is necessary.

Business and scientific programmers are familiar with these types of problems under the general heading of Monte Carlo simulation. In brief, this technique describes the problem in terms of a series of equations that need random numbers (e.g., dice rolls). A computer program then processes the equations. Each time a random number is needed, the computer "rolls the dice" and inserts a value. In this way, the computer simulates a person making the decisions. The key to the technique is to let the computer play the game many hundreds, or even thousands, of times. At this point, the effects, of the random numbers will average out and general trends should start to emerge. This article focuses on the problems of research in *HITLER'S WAR* and applies the results of Monte Carlo simulation to solve the particular problems of U-boats and strategic bombing. Throughout, it is assumed that the players are of equal standing and have similar attitudes. The results may need to be varied for particular cases. These results are only an indication of the most likely patterns. When you use them in a particular game the results may be very different. But, over time, you should see the patterns described here.

We can start by considering how difficult the designer made our task. In a game like *WOODEN SHIPS & IRON MEN*, for example, all information is summarized in exact tables. Developing summary graphs of the most effective ranges and hit chances is straightforward. In *HITLER'S WAR*, the research tables are organized such that any similar brute force attempt quickly becomes mired in a maze of alternatives. This doesn't proclaim one game to be better than another, or even more tactically challenging. It simply shows that the methods used to analyze them must differ.

In the following analysis, I used two types of computer programs. First, I wrote a *Basic* program to simulate various research strategies. From this program came Tables 1 and 2. Next, I used these tables to build *spreadsheets* that allowed me to investigate actual strategies for U-boat and strategic bombing. Another result of this computer analysis was the graph shown in Figure 1 that portrays the firepower

table. More detailed discussion can be found in the sidebar. [*For more information on the actual programs, which were written for the IBM PC in Basic and Lotus 123, send SASE to the author at 4528 36th NE, Seattle, WA 98105.*]

The Campaign Game in *HITLER'S WAR* includes provisions for research to reduce the cost of producing items ranging from paratroopers to atomic bombs. While the mechanics of research are simple —you allocate production points and roll a die— the winning strategy is not obvious. Once research points are allocated, you have the additional choice of trying for immediate results or waiting until more research has been done. Should you spend heavily on research to get to a high level before making the attempt? Or should you make many attempts at small levels of research? Should you be a trailbreaker in new fields? Or should you wait for others (even the enemy) to make the breakthroughs and then try to catch up with cheaper research?

THE TRUE COSTS OF RESEARCH

Table 1 shows the result of the Basic program that will be used for the rest of this discussion. The first two columns show the average cost for a level of research in production points and in turns. Two possible research methods were examined. In the first, no one has the item cheaper; in the second, someone does have the item so the chance of research success is greater. Looking at the tables, several general rules of thumb emerge:

1. Never waste time and resources getting to five steps.

2. Wait for others to do research whenever possible.

3. Don't go beyond Research Step 2 unless time is critical.

Let's examine these results more closely. The tables were constructed by programming the possible research methods (see Table 2). Each time a resolution was required, the computer simulated the throw of the die by choosing a random number. This process was repeated as often as needed to get a result, for example the cost in points for a given level of research. A running total was kept of the costs and the number of turns needed to conduct successful research. Since this technique requires so many random numbers, it has come to be known as "Monte Carlo simulation". When the simulation is run many times trends emerge that might not be evident if the analysis was done only a few times. (In this case, the simulation was run 1000 times. Increased numbers of simulations would not affect the final results significantly.) The results thus show

expectations, not actual costs. In other words, your luck with the dice will still affect your results. But, in the long run the tables will prevail.

The three truisms noted above are not obvious from examining the game's rules and charts alone. They are useful in themselves, but also lead to other insights. Table 1 was formed by assuming that each turn a research attempt would be made. Thus, while the row says "Step 5", in the simulation the research was attempted at each possible state up to that. To see if this was the best method of proceeding, a similar program was run in which no research was done until the noted level was reached. Thus, with no one having an item cheaper, it would take a minimum of five turns to achieve the research. This would be the best that could be expected and it is already worse than the average result shown in the table. From this we can generalize that research should be done anytime Level 2 or higher is achieved.

A final decision needs to be made concerning time versus production points. If you want to get research done as fast as possible, you'll need to spend more production points. But, if you're less concerned with timing, you can do better for less outlay. This is of especial concern for Britain. They can usually afford to let Germany do the research for items like mechanized units, infantry and paratroopers. If Germany doesn't do any research on those items, Britain can match German production. If Germany does decide to reduce its production costs through research, Britain can take advantage of the Axis research fairly quickly. This leaves more production points for other research interests.

Before moving on to the case studies, we can dispose of two of the many potential research areas—the atomic bomb and missiles. Since no one has it cheaper, the table shows that even with an average of about 2.8 turns/level, it should take about 20 turns to achieve the necessary seven levels of research and cost about 30 production points. The bomb will thus, on average, not be usable until well into the final year of the game. There is no way that it will be able to recover the investment made in it. A similar case can be made for missiles. These two weapons should thus be avoided by all but the luckiest dice rollers! In this the game is fairly historical as, Hiroshima to the contrary, neither missiles nor A-bomb had much of an effect on the war. (But that's source for another article entirely.)

SPREADSHEET ANALYSIS

Once the basic costs of research were fixed and the optimum methods chosen, various overall game

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Table 1: Research Analysis for Level Costs

| | If No Other has Developed | | If Already Developed | |
Step	Average Cost	Average Number Of Turns	Average Cost	Average Number Of Turns
1	4.31	6.0	2.62	2.9
2	4.21	2.9	3.63	2.1
3	4.30	2.8	3.48	1.9
4	4.39	2.9	3.54	1.9
5	4.45	2.8	3.50	1.9

Table 2: Example of Odds Analysis for First Two Levels
(Assume that no other player has the item developed cheaper.)

Odds of Research Success at Level 1:
  1/6—Success
  1/6—Semi-Success, reduce Production Cost
  4/6*1/6—Keep Marker at Current Level
  4/6*5/6—Failure

Odds of Research Success at Level 2:
  2/6—Success
  1/6—Semi-Success, reduce Production Cost
  3/6*1/6—Keep Marker at Current Level
  3/6*1/6—Move Back a Level, Loss of Production Point
  3/6*4/6—Failure

strategies could be investigated. The rest of this article will be concerned with two of them—"The Battle of the Atlantic" and "The Battle of Britain".

CASE 1: Battle of the Atlantic

Two models were investigated here. In the first, I assumed that the Axis built a U-boat fleet with no ASW response from the Allies. The table shows the results. The first five columns show turn, research costs in production points, costs for U-boat and production points used for building U-boats. This assumes that the research will not pay off until the third turn (as to be expected from the previous discussion). It also assumes that the Axis player decides not to concentrate on U-boats until he can get the price down to four. The next column shows the expected Allied loss each turn. The final three columns show the cumulative Allied and Axis costs in production points and the net result. A negative score indicates a benefit to the Axis. For example, by turn six, the Axis can expect to have inflicted six points of damage on the Allies. However, his total cost in research and U-boat production is 44, so the Allies are still 38 points "ahead".

The Axis effort to build U-boats will not start to pay off until Turn 17 (Spring 1945). Most production points up until this point will be wasted in a war of attrition. This is a result of the large amount of resources spent to build a weapon that, on average, can eliminate few enemy points per turn. But even this minor benefit can be offset by a modest Allied effort in ASW.

The table for "Case 1, Model 2" assumes that the Allies match the Axis U-boat research by spending research for ASW. The extra columns show Allied research costs, current production costs for ASW, production points actually spent on ASW, ASW brought that turn and cumulative ASW capability. Thus, by Turn 7, the Allies can expect to have achieved their second reduction in ASW costs, bringing it down to "3". This turn they purchase two ASW. The cost is reflected in a higher value in the Allied cumulative loss column. This slight expenditure can produce a balancing force that can keep the Axis effort to, at best, a break-even point at the war's end. Submarine strategy in *HITLER'S WAR* should, thus, on average yield no benefits to the Axis. The one benefit that might accrue is that the Allies will be forced to pay these costs earlier than under the first model. However, it will be difficult for the Axis to exploit this, since they are also spending so much for non-land forces.

CASE 2: Battle of Britain

I did similar spreadsheet studies to study the effects of various strategic bombing strategies. From the German side, there are two possible strategies. To simplify the numbers involved, the table shown for Case 2 will only show the last model. First, I assumed that production points are replaced by rebuilding each turn. This is actually the best case for the Axis, as England could leave some areas devastated and still conduct the war. This decision costs four points per hit—one for the initial destruction and three to rebuild. Assuming such an anti-industry campaign, and with no fighter response from England, the spreadsheet analysis shows that the Axis can hope for a win in 1945, but it will be close and the Axis must spend a large part of its income on this task. But the Axis has another option—terror bombing for morale reduction.

Using terror bombing, in an attempt to destroy British morale, a concerted effort by the Luftwaffe will produce an Axis win by about Turn 10 or 11. But the RAF was not historically so silent. The key is for England to match Axis bomber research with air defense research. The table for Case 2 shows this clearly. Once more the Allied response needs only to match the Axis offense. In this case, by the time Axis bomber costs have dropped from seven

Case 1: U-boat Strategic Warfare
Model 1: Axis builds U-boat fleet with no response from allies
Start to build when price goes to 4

turn	res	cst	prd	#	Allied loss turn	cum	cumulative Axis	net
1		6	0	0	0	0	0	0
2		6	0	0	0	0	0	0
3	4	6	12	2	0.6	0.6	16	15.4
4		4	8	4	1.2	1.8	24	22.2
5		4	8	6	1.8	3.6	32	28.4
6	4	4	8	8	2.4	6	44	38
7		2	10	13	3.9	9.9	54	44.1
8		2	10	18	5.4	15.3	64	48.7
9	4	2	10	23	6.9	22.2	78	55.8
10		1.5	9	29	8.7	30.9	87	56.1
11		1.5	9	35	10.5	41.4	96	54.6
12	4	1.5	9	41	12.3	53.7	109	55.3
13		1	6	47	14.1	67.8	115	47.2
14		1	6	53	15.9	83.7	121	37.3
15		1	0	53	15.9	99.6	121	21.4
16		1	0	53	15.9	115.5	121	5.5
17		1	0	53	15.9	131.4	121	−10.
18		1	0	53	15.9	147.3	121	−26.

Model 2: Axis does research & builds massive U-boat fleet but is countered by allied asw research

turn	res	cst	prd	#	Allied loss turn	cum	cumulative Axis	net	res	cost	ASW prd	#	cum
1		6	0	0	0	0	0	0		8		0	0
2		6	0	0	0	0	0	0		8		0	0
3	4	6	12	2	0.6	4.6	16	11.4	4	8		0	0
4		4	8	3.7	1.1	10.7	24	13.2		5	5	1	1
5		4	8	5.1	1.5	17.2	32	14.7		5	5	1	2
6	4	4	8	6.2	1.8	28.1	44	15.9	4	5	5	1	3
7		2	10	9.7	2.9	37.0	54	16.9		3	6	2	5
8		2	10	12.	3.7	46.7	64	17.2		3	6	2	7
9	4	2	10	14.	4.4	57.2	78	20.7		3	6	2	9
10		1.5	9	17.	5.2	68.5	87	18.4		3	6	2	11
11		1.5	9	20.	6.0	74.6	96	21.3		3		0	11
12	4	1.5	9	23	6.9	81.5	109	27.4		3		0	11
13		1	6	25.	7.7	89.2	115	25.7		3		0	11
14		1	6	28.	8.5	97.7	121	23.2		3		0	11
15		1	0	25.	7.5	105.2	121	15.7		3		0	11
16		1	0	21.	6.5	111.8	121	9.17		3		0	11
17		1	0	18.	5.5	117.3	121	3.62		3		0	11
18		1	0	15.	4.5	121.9	121	−0.9		3		0	11

Case 2: Axis conducts terror bombing of Britain, with corresponding Allied air defense build up

turn	res	bombers cost	prd	#	English morale loss	cumulative costs Axis	Allied	net	res	fighters cost	prd	#
1												
2												
3	4					4	4	0	4	7		
4						4	4	0		7		
5						4	4	0		7		
6	4	7	14	2	.8	22	20	2	4	6	12	2
7		7	14	3	1.8	36	26	10		6	6	3
8		7	14	3.6	3.1	50	32	18		6	6	4
9	4	3	12	5	4.8	66	42	24	4	2	6	7
10		3	8	4.3	6.2	74	48	26		2	6	10
11		3	8	2.6	7.2	82	54	28		2	6	13
12	4	3	12	2	8.0	98	63	35	4	1	5	18
13		3	12	0	8.0	110	68	42		1	5	23
14		3	12	−4		122	73	49		1	5	28
15			9	−11		131	78	53		1	5	33

Figure 1: Hits Versus Firepower

The Firepower Table

Average Number of Hits (y-axis: 1, 2, 3)

Firing Strength Points (x-axis: 1 2 3 4 5 6 7 8 9 10)
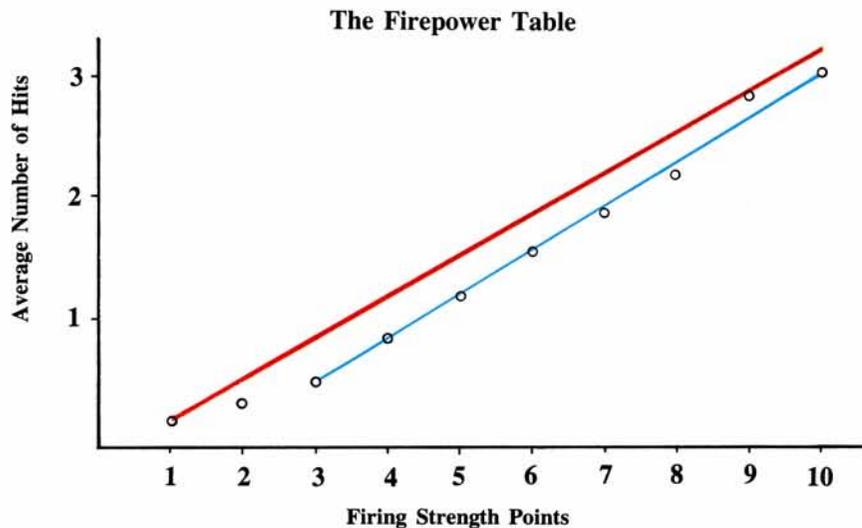
X = Actual values
A = ———— straight line from 1 to 10 = (fsp times ⅓) + ⅙
B = ———— straight line from 3 to 10

Arguments:

A: incremental firepower allows additive results (e.g., a firepower of 16 can be divided as 10+6 or 8+8 with the same result.

B: there are benefits when greater firepower analyzed; but then 16 sould be greater than merely 10+6.

A close examination of the Firepower Table shows that it needs some adjustment. If you plot the expected average result versus the firing strength points, you arrive at the graph in Figure 1. The X's show the current values. The dashed line is a straight line linking the values "3" and "10". The red line is a similar line using "1" as the starting point and moving up with constant slope. There are two things wrong with the current table, only one of which has any apparent explanation. The thing which can't be explained is the anomalous position of the expected value of "2 and 5/6s" for nine firing strength points. This is one-sixth too high and causes the graph to jump suddenly. The other anamoly is that the curve starts off at a low slope, then suddenly takes an upswing. This might be explained as the effect of increasing economy with more firepower, but the use of the table argues against this too. For firing strengths of greater to ten, you take ten first, then any remainder. For a firing strength of 18, then the current table would yield an expected hit value of "5 and 1/6". However, if this were divided as two fires of nine, the expected value would be "5 and 4/6", a full half-point more. Thus, the line that makes the most sense would start at a value of "1/6" for the first firing point, then increase by two-sixths for each additional firing point. An updated Firepower table is shown below:

Table A1: Revised Firepower Table

Die Roll	1	2	3	4	5	6	7	8	9	10
1	1	1	2	2	2	3	3	4	4	4
2	0	1	1	2	2	2	3	3	3	4
3	0	1	1	1	2	2	2	3	3	3
4	0	0	1	1	1	2	2	2	3	3
5	0	0	0	1	1	1	2	2	2	3
6	0	0	0	0	1	1	1	1	2	2
7	0	0	0	0	0	0	1	1	1	1

(Alternatively, you could just change the die roll of "4" in column 9 from a "3" to a "2". This would straighten out the curve in Figure 1, but leave the lower firing strength point.)

to three, the Allies should have brought their fighter costs from seven to one. At this point, somewhere around Turn 14 or 15, the Allies should be able to sweep the skies of any Axis bombers. Thus an alert Britain should forestall all but the luckiest Luftwaffe attacks. The decline of British morale in the average case is perilously close to the minimum. A few lucky rolls early on could make the Axis victorious. If this hasn't occurred by Turn 9 though, this phase of the game is over. Germany could come back with development of escorts to counter the air defense,

but this would in all likelihood bankrupt her economy. Air defense will always be cheaper than escorts, so England would just spend more on air defense.

Now we see that Germany cannot hope to win the war through research. Her efforts are doomed to failure, either from being too late, too costly, or too easily countered. And, so what can England do in return? Here the initial Allied superiority to the Axis can be used fully. Played for maximum probabilities, the Axis should not build a bomber fleet,

as the above analysis shows they will only delay their own defeat. This leaves the research option open to the Allies who should early on start to amass such a fleet. Germany will have the choice of spreading limited resources on air defense, countering with escorts or succumbing to morale defeat. The difference is the Allies have the extra resources so it really becomes a battle of attrition of resources.

In fact, the bombing rules have only a partial basis in history. The Allies won the Battle of Britain and then carried the air war to Germany. But the cost was high. As much as one-third of British manpower and industrial resources were devoted to supporting Bomber Command in the later years of the war. The game gives much more credit to strategic bombing than actually is due. The German blitz from September 1940 to May 1941 killed 40,000 civilians. This was only one-fourteenth the losses the British government had anticipated and was prepared to accept. On the offensive side, a study of photographs taken by bombers concluded that the average bomb never came within five miles of its target. Later, when British bombing policy openly allowed indiscriminate bombing of civilian targets, the effect on German morale was much less than that portrayed in the game. There were horrendous firestorms such as Dresden and Hamburg, but these accounted for a minute portion of missions. Overall, the effects were neither as dramatic or as deadly.

"Over the course of the whole war, the average result of a single British bomber sortie with a seven-man crew was less than three dead Germans, of whom perhaps one might be a production worker—and after an average of fourteen missions, the bomber crew themselves would be dead or, if they were very lucky, prisoners. Moreover, since the damage was done piecemeal over a long period of time, German industrial production for military purposes actually managed to continue rising until late 1944. The theory of strategic bombardment was sound, but the practice was a very expensive aerial equivalent of trench warfare"—Gwynne Dyer, *War*

SUMMARY

Use research wisely—concentrate on lowering the cost for mech, paras and other troops. This is where the war will be won. Do not take the initiative in research. Instead, watch your opponent's research for air superiority. Match him with cheap defenses against an expensive offense. Especially if you can simultaneously challenge him on the land, German strategic bombing will be no more successful than Goering's. Missile and atomic bomb research is worthless in this game. You'll spend much more on research than you can ever hope to recover during the game.

The morale rules are unrealistic. No nation has ever fallen to strategic bombing. The blitz of London made England fight harder, and Allied mass bombing of Dresden, Hamburg and Berlin did little to shorten the war. The intensive bombing of Japan came when the Japanese navy was destroyed, her armies isolated and her ambassadors already trying to negotiate a peace through neutral countries. After the atomic bombs were dropped, the US accepted the Japanese surrender on terms that had earlier been proposed by the Japanese. More recently, the horrific bombing of North Vietnam, in which more bombs were dropped than in the entirety of WWII, served only to fuse the resolve of the victims. The general lesson must therefore be that terror bombing only serves to build the resistance of the bombed populations. Only when the war is lost by other means do they capitulate. There is thus a good case for changing the morale rules in *HITLER'S WAR* to be less severe. ☆

THIS IS NO DRILL
Historical Views and Variants for VITP
By David M. Porter

VICTORY IN THE PACIFIC won the Charles Roberts Award for the best strategic game of 1977. That it is the best strategic game today is no less true than it was in 1977. What "dyed-in-the-wool" naval buff could pass up the opportunity of putting themselves in the shoes of the likes of Nimitz or Yamamoto? In the introduction it states that *VITP* "is easy, fast and fun to play—but it is not as realistic as a normal simulation or wargame." Why then yet another attempt (this) to make it more realistic?

Two reasons. One, while it is true that the tactical side, "represented as it is by artificial, simple game mechanics" lacks the realism of a *FLAT TOP* or *BISMARCK*, such is not so true of the strategic portion of the game. Where to place raiders and patrollers, which ports to return to, when and where to fight are all realistic strategic decisions that face the player, just as they faced Nimitz or Yamamoto. Second, I plead guilty to that particular affliction that is inherent in the species gamer—"fixitus". Few, if any, are the gamers who can resist the challenge that their fix, variant or change is "just what the game needs".

Because *VITP* is a "what if" game, it allows players to use strategies vastly different than those actually used. This "what if" factor is kept within reason by the "reality factor". This article seeks to address where the "reality factor" fails to keep the "what if" factor within reason and to attempt to correct this by the use of *historical* options. So bearing in mind "that one source does not a thesis make", I offer the following historical view and variants.

Within the bounds of the game, it is generally only on the first turn that the "reality factor" fails to keep the "what if" factor within the bounds of reason. The twin abilities of the IJN commander to both include almost any number of ships, including two extra carriers, in *Kido Butai* (the Pearl Harbor Carrier Striking Force) and forge a "perfect defensive perimeter", (Aleutians-Central Pacific-Marshalls-South Pacific-Indonesia) vastly overstates the actual abilities the Japanese enjoyed at the start of WWII. These assumptions are neither realistic nor historical. While the optional 10-ship rule somewhat redresses the former it does not go far enough. And nothing is done about the latter.

Any Japanese Commander worth his *sake* can, on the first turn, sink six or more ships at Pearl Harbor. Indeed, Alan Moon, in "TKO in Three" (Vol. 17, No. 4), states, "I figure to sink an average of seven ships. Actually, I really expect to get eight kills or more." While, at the same time, he plans to take control of the Aleutians (with nothing more powerful than the *Oi* or *Kitakami*) and seize the Central Pacific (using only the diminutive *Hosho* for air cover), as well as establish control in the South Pacific. This is all in addition to blowing away the 5th AF together with the *Prince of Wales* and *Repulse*, (teaching Admiral Tom Phillips in a most graphic manner the fallacy of his belief that "aircraft were no match for battleships") and gaining control of Indonesia, while maintaining control in the Marshalls, Marianas and the Japanese Home Islands. As an added bonus, the Philippines and Lae can be captured by encirclement, thus leaving the Yokosuka SNLF free to capture either Midway or Dutch Harbor. Further, since Wake is not on the map, and its conquest, in game turns, is essential and so is assumed (its historic defense by the intrepid Major James Devereux and his sharp shoot-

ing Marines shore batteries aside), the Japanese player is free to use the forces (CVs *Hiryu* and *Soryu*, CAs *Chikuma* and *Tone* from the Pearl Harbor Attack Force along with CAs *Aoba, Furutaka, Kako* and *Kinugasa*) from Wake and a SNLF elsewhere. This should give the warriors of the Rising Sun +7 to +9 POC. As if this was not enough, there still exists the real possibility that the USN can suffer the indignity of losing a carrier to the prowling submarine.

While there can be no doubt that the message *Higashi no kaze ame* ("East wind, rain") launched the Japanese on a series of spectacular victories, I doubt than even those Japanese caught deep in the throes of the "Victory Disease" would have believed that they were capable of such feats. Surely, Yamamoto himself, would have scoffed at the thought.

Richard Hamblen in his design article "Nuts, Bolts, Philosophy and Design" (Vol. 14, No. 4) on the game makes three points about the surprise attack turn.

1. That the attacks were risky and the results uncertain and that this uncertainty should be recreated rather than replaced with certain outcomes.

2. The allocation of resources was an important strategic decision that the Japanese player should be forced to make.

3. That units were positioned as they were at the time of the Pearl Harbor attack, except for the *Prince of Wales* and *Repulse* (which are positioned as they were when ordered to react to the Japanese attack).

I agree totally with the first, but history forces me to disagree with Mr. Hamblen's second and third statements. In reality, the Japanese allocation of resources was far more limited by factors which lie outside the scope of the game. As it stands now, the attack on Pearl and the subsequent destruction of the USN fleet is the prime objective of the case. At the start of the war the number one objective of the Japanese was the securing of the oil rich areas of Indonesia. In the words of noted naval historian Samuel Eliot Morison, "The Japanese attack on Pearl Harbor was but a part, and in their estimate not the most important part, of a comprehensive plan for the Greater East Asia War." As for the third statement, only some of the units are positioned as they were at the time of the attack on Pearl Harbor.

At the time *Niitaka Yama Nobore* was transmitted, the disposition of the Japanese fleet was as:

PEARL HARBOR ATTACK FORCE: CVs *Akagi, Kaga, Hiryu, Soryu, Shokaku* and *Zuikaku;* BBs *Hiei* and *Kirishima;* CAs *Chikuma* and *Tone.*

INDONESIA: BBs *Haruna* and *Kongo;* CVL *Ryujo;* CAs *Ashigara, Atako, Haguro, Maya, Myoko, Nachi* and *Takao.*

TRUK: CAs *Aoba, Furutaka, Kako* and *Kinigasa* from which they were to attack Wake.

HOME ISLANDS: BBs *Fuso, Hyuga, Ise, Mutsu, Nagato* and *Yamashiro;* CAs *Chokai, Kumano, Mikuma, Mogami, Suzuya;* CLs *Kitkami* and *Oi;* CVLs *Koshoand Zuiho.*

In September 1941, while the Pearl Harbor attack was just being considered as a "potential war plan", Vice-AdmiralMikawa, who was in command of the screening forces "demanded" *Haruna* and *Kongo,* but because the southern (Indonesia) operation had priority the two battleships went there. Also in

September, the skilled crews from the Third (CVLs *Hosho* and *Ryujo*) and Fourth (*Zuiho* and *Shoho*) Carrier Divisions were diverted to the *Akagi* and *Kaga.* The Combined Fleet wished to increase the number of Zeros on these carriers, which were scheduled to participate in the Indonesia operation. This move left the CVLs almost bare of Zeros and skilled pilots.

In order to insure that the attack would be made, and made with the six big CVs, in October of 1941, Yamamoto (along with the rest of his staff) threatened to resign if his plan was not adopted. Admiral Nagano, Chief of the Naval General Staff, reluctantly gave his approval on two conditions—that it would not interfere in any way with the Indonesia operation and that nothing would be done to weaken the air strength of the Navy in its attacks on Indonesia.

The CVLs did not have the range to make such an attack. Indeed, even the *Hiryu* and *Soryu* had to have some 700 tons of extra fuel stored aboard (for which Yamamoto had to obtain special permission from the Military Affairs Bureau) so as to cut down the refuelings at sea, a operation the IJN were neither skilled nor had practiced.

The need to maintain secrecy was evidenced by Yamamoto's orders to both Nagumo and Kondo to turn back if they were sighted before the 6th of December. While it may be true that the Americans were not exactly the paragon of vigilance, it is beyond belief that had the entire *Rengo Kantai* (the combined fleet) sortied (as is done in the game) that the seemingly myopic U.S. Commanders would not have taken notice and ordered their Fleet to sea. For the first six months of the war, up until the time they sortied for *Operation MI*, the attack on Midway, the main Japanese Battle Fleet (the battleships) swung idly in their anchorage at Hashirajima. Indeed, this total lack of activity resulted in them being ridiculed as "The Hashirajima Fleet" by the crews of *Koku Kantai* (the First Air Fleet).

There can be no doubt (historically speaking) that a strong case could be made to start the game with these dispositions. I do not suggest it, as it would greatly unbalance the game in favor of the USN. Nevertheless, it is still possible to more accurately reproduce the events of "December 7 1941, a date which will live in infamy" without dramatically unbalancing the game.

AIR RAID PEARL HARBOR— THIS IS NO DRILL

Change Rule 20. PEARL HARBOR as follows:

20.2 The Japanese player must assign CVs *Akagi, Kaga, Hiryu, Soryu, Shokaku* and *Zuikaku;* BBs *Hiei* and *Kirshima;* and CAs *Chikuma* and *Tone.*

20.21 The airstrike factors of the *Akagi, Shokaku* and *Zuikaku* are reduced to three. The actual attack on Pearl Harbor was made in two waves. The first consisted of 185 planes, while the second had 170 planes. Converting these figures by Mr. Hamblen's formula (10 planes per strike equals one airstrike factor) the first wave would consist of 19 airstrikes and the second, 17. Compare with the now reduced airstrike factors (*Akagi*'s three + *Kaga*'s four + *Hiryu*'s three + *Soryu*'s three + *Shokaku*'s three + *Zuikaku*'s three) and you have an almost perfect match.

20.41 On the second round of the air raid, and all subsequent air raids, any USN ship that is "not rest-

ing on the bottom'' can use Anti-Aircraft (see proposed Rule 24 below).

20.511 Only the uncertain Groups W (*Enterprise, Salt Lake City, Northampton* and *Chester*) and X (*Lexington, Chicago, Portland* and *Astoria*) could "show up" in the Hawaiian Islands. The uncertain Groups Y (*Saratoga*) and Z (*Hornet, Yorktown, Vincennes*) enter at Pearl Harbor on Turn 2. [*For the appearance of the Quincy see below.*] At the time of the attack, the *Saratoga* was rounding Point Loma off San Diego, and did not leave for Pearl Harbor until 8 December. The *Hornet, Yorktown, Vincennes* and *Quincy* were all in the Caribbean and could not have possibly "shown up" in either the Hawaiian Islands or the Central Pacific.

20.7 During the attack, torpedo bombers and fighters mistakenly attacked the old battleship *Utah*, which had been converted into a target ship by stripping her decks and covering them with timber. From above she may have looked like a carrier. To recreate this confusion allow the USN player to designate one ship to "change places" with the *Utah*. Example: if he chooses the *Nevada* and the IJN player attacked the *Nevada* it would be the *Utah* that was hit; alternately if the *Utah* was attacked it would be the *Nevada* that would be hit. This would only apply to the first round of the air raid.

MODIFYING THE SHIPS

Essex Class Carriers This class of carriers were designed to operate with over 100 aircraft. From their first use in November 1943 (Turn 6) until the end of January 1945 (Turn 9), the average number of aircraft carried by all ships of this class was 97+. Using the same criteria as Mr. Hamblen did when he rounded up the *Shoho* and *Zuiho* ("Return Fire" in Vol. 17, No. 3), this class should have airstrike factors of "5".

IJN Bonus Airstrike Factors The Japanese carriers that arrive from Turn 7 on are not given the attack bonus because of poorly trained pilots. This was primarily due to the large number of experienced pilots lost during the Coral Sea and Midway battles. If, by Turn 7, the Japanese have three of their original six big carriers still in the game, then the newly arriving CVs and CVLs would still get the attack bonus and, in addition, the CVLs would have airstrike factors of 2.

Akagi The *Akagi*'s airstrike factor of four is just not correct. During the attack on Pearl Harbor it operated 64 aircraft and during its last battle, at Midway, it only operated 63 aircraft. This clearly gives it a airstrike factor of "3". However, because it *was* capable of operating more, if it is still around on Turn 3, its airstrike factor can be raised to "4" on this and all subsequent turns.

Shokaku and Zuikaku Although they operated only 60+ aircraft for both the Pearl Harbor strike and the Coral Sea battle, during the rest of the war both carried over 72 aircraft. Beginning with Turn 3 and on all subsequent turns, they have airstrike factors of "4".

Shinano There are conflicting reports about this 70000+ ton carrier completed from the hull of the third Yamato Class BB. Although reportedly capable of operating some 70 aircraft, most sources claim it was in fact completed as a "maintenance/depot ship that could operate only 47 aircraft. Therefore, a serious claim could be made to give it an airstrike factor of 2.

AMPHIBIOUS UNITS

Like Richard Hamblen, I too agree with Craig Burke's ("Air Power in VITP", Vol. 17, No. 3) proposal to give the US Marines a "Bonus 1" airstrike factor to account for the Taffy (CVE) carriers. But, I feel he did not go quite far enough.

The total inability of amphibious units to defend themselves in a surface action is not totally accurate. I propose that each amphibious unit (both IJN and USN) gets one surface shot. Once again, referring to Mr. Hamblen's designer article, he states "aircraft carriers with enough 5" guns get a nominal factor because of the "sheer weight of metal they could put out"; considering the "close support" both sides gave these amphibious units there should be no problem allowing these units a "nominal" one shot.

ANTI-AIRCRAFT

This Optional Rule 23 in the old rules was in Burke's words ("Air Power in VITP", Vol. 17, No. 3) "too blasted complicated"—which is probably why it was left out of later editions. Mr. Burke's anti-aircraft mufflers also tend to become too complicated. So, I propose a melding of the two with the hope that together they may become greater than the sum of both.

24. ANTI-AIRCRAFT

24.1 At the start of each "day action" both players secretly specify in writing which airstrikes are attacking, and which are defending during that action.

24.2 Defending airstrikes can only attack enemy attacking airstrikes.

24.3 All defending airstrikes' attacks are allocated and resolved like normal attacks on land-based air units. Hits muffle one airstrike factor and take effect immediately.

24.4 After all defending airstrikes have attacked, surviving attacking airstrikes are allocated to their targets.

24.5 Each target then has one "shot" (no attack bonus) against each airstrike attacking it. Hits muffle one airstrike factor and take effect immediately.

24.6 Battleships that are not being attacked also each get "one" shot (no attack bonus) at any attacking airstrike. Hits muffle one airstrike factor and take effect immediately.

24.7 Only then may the attacking airstrikes execute their attacks with what strength they have left.

24.8 Airstrike factors that are muffled in one attack are not affected in proceeding attacks.

24.9 Only one unit per side is allowed to break down its airstrikes into attacking and defending factors.

ORDER OF APPEARANCE

Lastly, again bearing in mind the axiom regarding sources and the making of the thesis, I feel there are a small number of errors in the appearance of ships.

WASP The *Wasp* should actually enter on Turn 3. It, in company with *North Carolina* and *Quincy* passed through the Panama Canal on 10 June 1942. While it is true that it did not sail from San Diego until 1 July 1942, it was available for use on three of the four months of Turn 3. As it stands now, the *Wasp* does not enter the game until four months after it was actually sunk.

QUINCY The *Quincy*, like the *Wasp* and *North Carolina*, should enter on Turn 3.

BUNKER HILL The *Bunker Hill*, currently scheduled to enter on Turn 7, actually came in to service shortly after CV 10 (the new *Yorktown*) and CV 16 (the new *Lexington*). It participated on 11 November 1943 in the attack on Rabaul together with the *Essex* and *Independence*. So *Bunker Hill* enters on Turn 6.

HANCOCK The *Hancock* (CV 17) is not included in the game at all. It seems a shame to leave out a ship called by ADM Halsey "the damnedest ship I ever saw in action. She starts firing first and quits

last." Her contributions to winning the war were not insignificant. *Hancock* had the largest single day's bag of enemy planes—72 in the air and 19 on the ground. During her service she destroyed 733 planes, 17 warships, and 31 merchant ships. She was part of the TG38.1 during the battle of Leyte Gulf. The *Hancock* arrives Turn 6.

AIR UNITS A strong case can be made for the inclusion of three additional Allied LBAs. They would be the Royal Netherlands Air Force (RNAF), the Royal Air Force (RAF), and the US 20th AF.

The RNAF, which under Gen van Oyen, served in ABDA from its organization in Jan. 1942 until Feb. 1942, when the ABDA was dissolved. It would have been available from Turn 2 on; but unlike the other LBA, if it was sunk it would *not* re-enter the game two turns later due to the lack of replacements available. The RAF, which served in Singapore, was also part of ABDA and later was stationed in the Bay of Bengal. It too would enter on Turn 2. The US 20th AF, which under MAJ. GEN Curtis LeMay, operated out of China. It would enter play on Turn 8. In the end, however, the addition of these three LBA tends to unbalance the game, so I mention them only in passing.

Using these several variants allows the players a greater degree of latitude in attempting to better historically recreate the events of this, the greatest sea conflict of all time. It brings the game closer, I think, to a true simulation while maintaining the spirit of the game. ☆

STAFF BRIEFING
An Interview with Craig Taylor
By Rex A. Martin

Full Name: Samuel Craig Taylor, Jr.

Birth: March 1946 in Philadelphia, Pennsylvania

Started Wargaming: 1956—with Britain's 54mm miniatures

First Wargame: Started with miniatures rules of my own design. The first commercial wargame played was *TACTICS II* in 1958. **Favorite Wargame:** There is no single game I can list. These things change as the years go by, but any list of my past and/or present playing favorites has to include the following: *Armor/88/Panzer, AFRIKA KORPS, CAESAR ALESIA, CV/FLAT TOP, Close Assault/FIREPOWER, DIPLOMACY, MACHIAVELLI, EMPIRES IN ARMS, FLIGHT LEADER,* French Foreign Legion, *FURY IN THE WEST, House Divided, Rally Round the Flag* (miniatures), *RUSSIAN CAMPAIGN, RUSSIAN FRONT, Ship 'o the Line* (miniatures), *Swashbuckler, Sword & The Flame* (miniatures), and *Wings.*

Favorite Non-Wargame: Again, no one title will do. Favorites are: Chess, *Emperor of China, FOOTBALL STRATEGY, NAVAL WAR,* Poker, *Risk* and *Roaring Twenties.*

Outside Interests: Reading history (particularly of the American West); professional football; snorkling; target shooting; and playing tourist and travelling.

Employed by AH: January 1984

Designs: These are listed in chronological order as they were released: *WOODEN SHIPS & IRON MEN, Shenandoah* (with Steve Peek), *Rally 'Round the Flag, Ship 'o the Line, AIR FORCE, DAUNTLESS, FLAT TOP, Armada Supplement* (miniatures), *AIR FORCE/ DAUNTLESS EXPANSION KIT (soon to be STURMOVIK), Starfighter, Battle,*

Pickett's Charge, Showdown, Wings, Bomber, Close Assault and *FIREPOWER.*

Developments: Again, in chronological order: *FURY IN THE WEST, Viva Espana, MACHIAVELLI, Sopwith, Quest, Insurgency, Armor Supremacy, NAVAL WAR, Panzer, Sword and The Flame, 88, Fast Attack Boats, Swashbuckler, Armor, Dallas, Attack of the Mutants, Barbarians, Adventurer, French Foreign Legion, RUSSIAN FRONT, EMPIRES IN ARMS* and *FLIGHT LEADER.*

Before we start, Rex, one question for *you.* When you first stormed into my office with that messianic gleam in your eye and a sheaf of nosy "Staff Briefing" questions clutched in your hot little hands, I gave the whole project the circular file treatment that it so richly deserved. Then, you threatened to make up your own answers if I refused to provide any. My question is—how can readers tell if these are my answers or your ravings? [*Trust me, readers; would I really say these things you are about to read about myself?*]

Q. You were an Army "brat", weren't you? Where was your father stationed during his career?

A. I was not an *Army* "brat," paste-up breath; I was an *Air Force* "brat"! Indeed. We certainly moved around enough while I was growing up. We lived in Philadelphia until 1950, when my father got called back into the service for the Korean War. After that we flitted around the globe going to Spokane, Washington (Fairchild AFB), then back to Philadelphia while the old man did tours in Korea, England and Norway. We took a Pullman to El Paso (Biggs AFB) in 1954, then to Morocco (Sidi Slimane AFB) in 1956 (you haven't lived until you've flown across the Atlantic in a C-47 with bucket seats and parachutes for pillows)—this gave opportunities for side trips to nearby Gibralter, Spain and Germany. Finishing grade school, it was troopship transportation back stateside to Ludlow, Massachusetts (near Westover AFB) in 1958; then 28 hours by DC-6 to Guam (Anderson AFB) in 1961, which gave us the chance for tourist sorties to Japan and Hong Kong. In 1963, some omnipotent presence in the Pentagon dropped us in Biloxi, Mississippi (Kessler AFB) where I finally finished high school (in all, I attended 11 different schools in 12 years). As my sister has pointed out, none of us realized we were having an unusual childhood until we got to college and met people who had spent their whole lives in one place.

Q. What did you do before your became a full-time game designer; what was your previous career?
A. For a number of years I managed fast-food restaurants. When I finally realized that the sight of another hamburger could lead to violence, there was a position as a buyer and production/scheduling coordinator for a large printing company. Just prior to entering design work full time, I was managing a liquor warehouse.

Q. OK, let's get this one out of the way since everyone is waiting for it. What is your "design philosophy"?
A. Rex, you're a rat for trying to corner me like this! Everybody ever suckered into one of these interviews blathers on with something like, "I prefer to do simple but realistic games, elegant yet historical and fun to play packed with lots of simulation detail"—a comment worthy of the Delphic Oracle (try chanting it in Attic Greek). After more than a dozen years in this business, examining various surveys, talking to thousands of people at hundreds of conventions and trade shows, and exhaustively tracking the sales (or lack of them) of hundreds of games, I could realistically state that I'm still confused; but I'll stick my neck out and admit that my *commercial* wargame design philosophy has evolved to producing *saleable* games. A game that doesn't look like it can sell isn't worth printing. Saleability, as I see it, involves three major concepts: "balance", "focus" and "cheating" (no, this is *not* my playing style). Publishing any new commercial game is still pretty much the same crapshoot it was in 1958, but every commercial design in the pipeline should be evaluated in light of these three criteria, in addition to what the designer or developer thinks about the game as a *game* (obviously, if the game looks like a stinker, that should be the end of it) before the presses are ever cranked up.

"Balance." Just to be different (and you knew that I would, didn't you Rex, you sorry rascal), let's ignore what gamers and reviewers *claim* they want and study what is actually *played*, what really *sells* and why. A quick look at anybody's list of all-time best-sellers and favorites and/or games that have stayed in print for any length of time shows that the so-called "playability" versus "complexity" controversy is somewhat irrelevant (a matter of individual taste). The "Catch-22" in commercial wargame design is that every gamer has a *different* favorite topic or topics and there is only enough convergence in these topics to provide a small number of generally "popular" historical

periods (Modern, Second World War, American Civil War to a lesser extent, and Napoleonics to an even smaller extent), environments (land warfare is more popular than sea or air warfare), and/or level (tactical level games currently tend to outsell strategic level games) to provide *general* guidelines.

If you're designing a game only for yourself, you can do it on any topic and incorporate any level of detail and/or abstruse mechanics desired and you'll be as happy as a clam, and no one else will be the wiser. A magazine game can also be, to a lesser extent (there are severe restrictions on components to consider), equally esoteric—subscribers get the magazine no matter what is in it and an interesting lead-in article can generate enough interest for many gamers to try even the most off-the-wall gaming subject. To do a successful *commercial* game that can sell on its own (which has always been my lot in this industry), some hard-nosed evaluation is required concerning the topic's and scale's popularity, and concerning components and their effects on price and the desired level of complexity if the game is to pay salaries, overhead, advertising, etc., and show enough of a profit so that stockholders and the boss aren't howling for your head.

The fact of the matter is, most gamers are perfectly willing to absorb more complexity and detail (and to pay more) in a game on their *favorite* topic (witness the length and cost of the rules and gamettes for *SL/ASL*; tactical WWII is obviously a lot of people's favorite topic) than in one on some other topic. They prefer simpler, faster-playing and cheaper games on topics which are not among their favorites if they are to buy them or try them at all. What this boils down to in the real world of commercial game publishing is something that can be referred to as *balance* between "simulation detail" and "playability" with a price connection influenced by this *balance*. gamers fork over the long green only when convinced that the product matches their interest level.

Every wargame design requires some level of separate detail (often called "chrome") to reproduce some of the unique flavor of the game's topic. The $64,000 design and development question is how much detail should be separate; how much should be abstracted in a game's basic mechanics; how much should simply be ignored as unimportant; and what would be the cost of a published game employing each option. A more popular game subject can usually contain more detail and be more complex (and this increased complexity can lead to more components and a higher price) and still be successful in terms of saleability and popularity than equally complex and costly games on less popular game subjects, simply because the levels of the popular topic game more-or-less match a larger number of gamer's degree of interest. By the same token, less complex and cheaper games on less popular subjects can also develop into company profit centers. Inevitably, "balancing" a game design in this manner doesn't produce a game that is everyone's cup of tea. The same game can garner wildly varying reactions, comments and reviews, depending on whose favorite ox is being gored. For example, the recent *RUSSIAN FRONT* has generated letters ranging from, "Why didn't you do this on the division level?" (from an obvious Eastern Front devotee) to, "I would have preferred a cheaper game that could be played in under one hour" (from an obvious fan of *Squander*). On the other hand, the game's popularity and sales show that the level of complexity, scale and cost obviously matches many players' interests on the subject.

"Focus." Regardless of a game's complexity, every game should have a focus. A wargame's focus is the major design elements that define the situation's unique and most-important characteristics in the most basic manner. If a reasonably playable ("balanced" with regard to the popularity of the

topic), logical and smoothly-flowing system can be put together to cover a game's focus, other factors can be abstracted to mesh for the correct "effect" without the game bogging down in details, however interesting those details may seem to be. For example, ancient period games have historically been poor sellers (a favorite topic with few gamers), so a typical ancient game should be "balanced" to be fairly simple and, since ancient tactics did not involve especially simple systems, "focused" to avoid a complete breakdown of the game's simulation values. One of the better selling ancients games ever published, *CAESAR ALESIA*, has a focus entirely on the Alesia situation. If you tried to use the game's system for an open field battle, it wouldn't provide a very convincing ancient game. By focusing *only* on the Battle of Alesia, as opposed to having a set of all-encompassing ancients rules applied to an Alesia scenario, a much simpler set of rules and mechanics was possible and extraneous, unnecessary details that played a minor part in the battle could be ignored or abstracted.

"Cheating" After explaining what my muddled brain calls "balance" and "focus", there is one final point that negates the first two to some extent and actually has two aspects. In one incarnation, *cheating* can be used to offset some of the more dulling influences of always worshipping at the idols of "balance" and "focus" by the addition of Optional Rules that add details and complexity (at possibly some additional cost) to a game that is essentially "balanced" at a simpler level. This "cheating" allows a designer or developer to have both a game that is balanced and focused at a perceived major market level of interest while also including a more complex and detailed version for the true grognards on the topic.

At the second level, "cheating" is the realization that "balance" changes over the years (a typical wargame now has much longer rules and more components than twenty years ago) and that from time to time games come along that break all (or some of) the rules and open up new topics, scales and/or design techniques to widespread popularity. In the late 60s, the "conventional wisdom" was that tactical scale games were an unpopular topic and that there were limits on acceptable complexity. *BLITZKRIEG*, a tactical game with what was then considered very complex rules and numerous components, changed all that and today tactical games provide many of the best sellers. On the other hand, *UP FRONT* is an example of an unconventional game that, although sales have been passable, failed to have a major impact on wargame design and sales patterns. A designer or developer that gets his hands on a game that seems to have a "breakthrough" capability must sometimes go intuitively against the flow, with the full realization that this makes the game an even bigger gamble than usual.

Q. I've heard it said by other designer/developers, that once they have finished a game, they never play it again! Do you continue to play the older games you worked on?
A. Surely you jest, Rex? *Moi?* Actually, by the time a game is finished (what with endless proofreadings and the usual skirmishes with art and printing departments), I'm usually so sick of it that I don't even want to look at it for a month or more. After that, there is a tendency to drift back to it and start playing it again. Examine my list of favorite wargames and you'll see many listed there that I worked on. The fact is, if I was interested enough in the topic to work on the game in the first place, that interest will eventually draw me back.

Q. What types of games do you enjoy playing?
A. Games where there are a variety of successful strategies that can win or lose the contest. Games that are disguised puzzles or which have only one "best plan" tend to pale after a few playings. Given

a choice, I prefer multi-player games to two-player or solitaire games.

Q. While working at Yaquinto, you also had published several sets of rules for military miniatures simulations. Do you still play, and do you prefer, miniatures wargames?

A. As if you weren't right there for our regular miniatures games, Rexy boy! We published *Ship 'o the Line* (a miniatures version of *WOODEN SHIPS & IRON MEN*) and *Rally 'Round the Flag* at Battleline and *Sword & The Flame* at Yaquinto. All three of these titles have gotten "best game" H.G. Wells Awards and are still in print. I got started in wargames playing miniatures and they are still my overwhelming favorite. It is hard to beat the color and flavor of a well-appointed miniatures layout or the thrill of watching troops that *you* painted rout the enemy (or the chagrin of watching the ungrateful little buggers run to the rear). As a matter of fact, a large number of boardgames I've done over the years started as miniatures rules or were later converted to minatures—I have the figures and accessories available to play *AIR FORCE/ DAUNTLESS*, *Wings*, *Close Assault/FIREPOWER*, *Panzer/88/Armor*, *Ironclads* and *FLIGHT LEADER* as miniatures games.

Q. At TAHGC, the developer has the last word on every aspect of a game, from artwork to rules, and is directly involved in every step from initial evaluation to final paste-up. How does this compare with normal procedures at other companies? Do you favor such total control of your developments, rather than the "team" approach?

A. The approach here is exactly the one with which I have always worked and there is no doubt in my mind that "total control" is the superior method. Too many chefs can spoil the broth and too many riders can kill a horse, so there must be one knowledgeable person with complete authority and responsibility who can cull good suggestions from bad and has a feel for what is important and what is not.

Q. There has been recently a lot of kerchief-wringing over the state of the hobby, the industry, and various trends among wargamers. You have spent more years than many involved in the hobby, both as player and as designer. What, in your view, are the difficulties facing the wargaming world at present?

A. My view of the hobby right now is that there may be too much of a good thing. Wargaming as a *hobby* has probably never been in better shape. Those of us who were active in the 50s and 60s can remember how hard it was to find decent miniature figures, decent reference material, new games and, most important of all, sane opponents. Long drives and even vacation trips were planned around visits to distant rare game emporiums and/or for the chance to meet fellow hobbyists known previously only from correspondence. Getting four gamers together in the same room was an historic event that called for picture-taking and cigars all around.

Now, there are so many goodies available that purchases must be carefully budgeted and many gamers have found it expedient to specialize in only certain historical periods—or even in just one game (i.e., the *SQUAD LEADER* phenomena). This leads to people in what is supposedly the same "adventure gaming" (how I *hate* that term) hobby finding that they really have little in common to discuss. For most people, finding opponents (even considering specialization) and/or a game to play is so easy that there is little pressure to recruit new people into the fold or to try different games and/or scales or historical periods. Gaming conventions are so common and widespread that people actually pass them up ("Aw, I went last year; I can afford to skip a year."). I can remember attending a wargame convention in Paoli, Pennsylvania in the summer of

1967 where 42 players attended and wondering if there would ever be another such gathering. In short, the hobby is getting older (less "new blood"—not an immediate worry, but one that could cause long-term problems) and more fragmented (role-playing, computer games, board wargamers, monster games, play-by-mail gamers, miniatures wargamers, etc.). While all this is great on the surface for the hobbyists, it makes it harder for the publishers to find a large enough market for any given title to justify large print runs and, for this reason, prices continue to creep upward.

Being a wild-eyed optimist, I do see cause for hope. Wargaming as a *business* has always been cyclic in its growth patterns and, due to the relatively small size of the industry, often at the whim of market and economic forces over which the industry has little control. There was great initial growth in the early 60s, then a serious dip in the mid-to-late 60s that turned to rapid growth by the mid-70s. The downturn of the early 80s seems to be ending, with sales and convention attendance edging back up, although this currently seems to be due to gamers with more money and time to spend on their hobby than to any growth in the number of gamers. The slumps in the 60s and early 80s were both caused to some extent by changes in distribution and marketing patterns and the industry is still in the process of adjusting to the latest changes. What would help the industry right now is some new "hit" that opens new markets—a game or idea (not necessarily on a wargaming topic, but anything in the so-called "adventure gaming" field) that will open up new outlets for wargames the way that the Milton Bradley "American Heritage" series games did in the late 50s and early 60s, *S&T* magazine and their advertising blitz did in the early 70s, and *Dungeons & Dragons* did in the late 70s. A "hit" makes major retailers more aware of the games and hobby and they start to carry a broad selection of goods whose sheer availability can bring hobby growth.

Q. And what aspirations do you have in the hobby? Awards unwon; designs uncompleted; games unplayed; conventions unattended?

A. I'm just tickled pink that there are people willing to pay me a living wage to do something that, once upon a time, I was happy to do for nothing in my spare time.

Q. We all know a few colorful "characters" among our gaming associates whose foibles make the game more fun (or funny) than may have been intended. Surely, after all these years, you must have quite a "mug file" of such friends. Care to describe a couple?

A. This is quite a question coming from "Martin the Merciless", famed cripple shooter. Are you trying to entangle me in libel suits? I refuse, in most cases, to name names or give dates and locations, although if you're reading this, you know who you are. Remembering, as the great sage Yogi Berra put it, "Ninety percent of this game is half mental", here's a few from my personal rogues gallery:

The Considerate Commander. An otherwise uneccentric miniatures player who painted up a group of "camp followers" of the female persuasion. Following every game, while picking up his troops, he would invariably reward the troops who had done best in the game by placing the camp followers in their box.

But Where Do You Sleep? Intrigued by a recent acquaintance's mention of a continuing solo miniature game of the early days of World War I, I went over to his apartment to see the set up and from that day to this, I have never seen anything else quite like it. I've seen 48- and 60-mapboard *BLITZKRIEG* layouts, but this was unprecedented. You have to try to imagine a *huge* two-bedroom apartment with *all* the furniture in one room. All of the remaining

floor space, running continuously from room to room, was used for a scale terrain map (roads, rivers, railroads, cities, fortifications, hills, forests, etc.) of Belgium in 1914 covered with thousands of troops and guns. The game had been in progress for four months then and was expected to continue for at least another year. That's dedication.

Ward, I'm Worried About The Beaver. At Origins '81 in San Francisco, my old buddy Steve Peek was running a hilarious wargaming trivia event, handing out gift certificates to winners who could correctly answer dumb hobby-related questions. One bright young fellow had missed two questions already and, taking pity, Peek threw him what he thought would be an easy one:

"Who designed *SUBMARINE*?" (Peek's own design)

Confused young man: "Uh, Jim Dunnigan?"
Surprised Peek: "*NO!* Try again."
Hapless lad: "Let me see now, Richard Berg?"
Peek (with face turning a lovely shade of red and finger pointing at his chest), "One more try. Think, kid, think!"
Hesitant youth (fearing for his life): "Don Greenwood!"
"Go away kid; you bother me."

Q. Much of the gaming at Avalon Hill is done as playtesting—either new releases by other companies, or our own unpublished designs. How do you like to handle the playtests of your projects? Do you rely on playtests to a great extent?

A. Over the years, I've arrived at the magic number of "forty". I like to *personally* playtest any game I'm working on at least forty times as I've found that most gaming problems will surface, get noticed and be corrected in this period and this much mastery of the game is required to provide properly balanced victory conditions. You can't hope to balance a game for competition between two expert players if you don't take the time and effort to become expert in it yourself. Besides, playtesting is the only time I actually get paid for playing games!

Beyond the personal playing, local playtesters provide competition and are good for suggestions as the design evolves and "blindtesters" are useful for spotting any problems that the designer/developer or the local playtesters may be too close to the game to spot. To a large extent, once a game is researched and designed, any major improvements possible have to come from the playtesting. During repeated playings, refinements will suggest themselves and problems will be addressed that will result in a much improved end product.

Q. For many of our readers, wargaming is a cherished pastime. What do *you* do for relaxation?
A. I participate in interviews with psychotic magazine editors. ☆

HITLER'S HANDBOOK
THIRD REICH Commentaries
By Scott D. Sabol

In the time *THIRD REICH* has been around, numerous articles have been written on strategy for the game. Most have dealt with individual countries and opening strategic plans. There just haven't been many articles on the fringe aspects of the game or how these aspects impinge on the play of the countries. The following is a compilation of a series of my articles appearing in *The Buzzard's Breath*, an amateur 'zine which is primarily devoted to play-by-mail *THIRD REICH*. They appear with the kind permission of that 'zine's editor, Mark Matuschak (44 Garden Street, Boston, MA 02114). These jottings aren't necessarily meant to espouse the ideas expressed—but merely to explore some options and provoke comment. The fact I use many of these ploys is purely coincidental.

Don't be put off by the seeming contradictory nature of the sections. In writing the series, I tried to approach each idea expressed from the viewpoint of the country primarily involved. The concerns of other players, or their reactions to the ploy, are beyond the scope of these "commentaries".

1. STRATEGIC WARFARE

Strategic Warfare (*SW*) is an aspect most misused in *3R*. The German player usually builds only subs until 1944, and then some interceptors. The Allied players usually build ASW until 1944, then some SAC. SW is more than this, especially in the new *3R* edition. It can bring about an early collapse of the Allied offensive capability, or an early return to the continent. Therefore, SW is an important element in the offensive and defensive plans of each side.

Realize first that Britain (and possibly the U.S. in 1943) will lose the majority of the BRPs lost to SW. Germany will lose some BRPs to SW, but the main damage done by the new rules is the loss of a 5-4 air unit if any BRPs are lost to SAC. All this is fine in theory, but how can a player use it? What follows is my preference as the Allies.

Britain can stand to lose up to 90 BRPs in the 1941 and '42 YSSs. Her game is mostly a defensive one until 1942, so those losses can be accepted. The only area where an offensive posture should be taken is North Africa. A 90-BRP loss could likely be 30 in 1941 and 60 in '42. Therefore, I keep at least that much of a cushion in those years, plus some for growth. If intelligence helps me learn the Axis SW box builds, that cushion can change. Another factor is my own SW builds; yet a third is if I hold Variant #5. If that variant is mine, my cushion changes to 20 and 40 BRPs for each year respectively. I find that some SAC can be built, especially in the 1941 YSS. (As the Axis, I get annoyed when a 5-4 air unit is taken away when I'm opening my 1942 Spring offensive in Russia.) Losing that air unit hurts Axis offensives everywhere, and gives the Allies a quicker return to the offensive. The psychological advantage over opponents after this has been done a few times will lead to German construction of fewer subs and more interceptors, thus reducing Allied BRP losses to subs.

Finally, many players ask why Britain shouldn't suffer a 9-factor fleet loss when BRPs are lost to SW. I believe this is due to the fact that these capital ships (carriers, battleships, cruisers) unsuited to the task of hunting U-boats. The air unit, on the other hand, represents fighters and light bombers easily coverted to attacking heavy bombers.

Strategic Warfare is not the sideshow many players treat it as. It is an integral part of any plan for victory, or avoiding defeat. If used wisely, it can provide unexpected opportunities. If not used, it can snatch defeat from the jaws of victory.

2. INTELLIGENCE

Rules Section 33.5 in the 3rd edition is a feature with which many players may not be familiar. This installment is designed to give some insight into its more devious uses. Most games which I've played have seen the Intelligence Table (hereafter the *IT*) used exclusively by the Allies. Most Axis players seem to think that anything not involving combat and units is a waste of time and resources. Not so. The IT is a tool for the major countries to do many positive things—negate an enemy's variant ("I, Stalin, have just kept the Turks from invading me!"), find out what is in the opposing Murmansk or SW box, or even reduce Foreign Aid to a Minor Country to keep it neutral for example.

The Allies especially must be careful in their dealings with the IT, since it can be used against a "friend" (33.55). Diplomacy in *3R* takes on new importance.

The Allies are in an advantageous position to use the IT in the early game (1939 to 1941) since they are on the defensive and France and Russia have extra BRPs to burn. France should be the country of choice to expend the five BRPs in Fall '39 to help avoid the "flip-flop" over the Winter-Spring period of 1939-1940. Russia will have extra BRPs after taking the Baltic States and unit builds. So go ahead and spend. Six turns of spending could catch the Axis off guard and nullify their variant. After 1941, the Allied BRPs don't really exist to spend on the IT, since the British must face the U-boat threat, and Russia faces Barbarossa. However, the Axis might decide to use the IT themselves so some reserves must be kept for counter-intelligence (33.51). At that, a late chance may appear to surprise the Axis with an IT die roll, so the Allies should be alert for the opportunity.

The Axis generally use the IT much less then the Allies as they are on the offensive in the early game and need pay for all this activity. Later, the variants usually have been played and the Minors activated. The best Axis tactic here is counter-intelligence. Allied variants don't hurt the Axis nearly so much as the Axis ones hurt the Allies. Allied Foreign Aid is more easily countered. Rule 33.53 allows optional choice of a lower number than rolled. This points to the place the Axis should try for, "#10 Reduction of Foreign Aid". By spending those five BRPs, up to six BRPs of eneny Foreign Aid can be removed from an Ally, increasing the chance of activiation.

Do expect opponents (and sometimes friends) to use the IT against you, and use it yourself. It may be useful, especially if un-opposed, as Rule 33.52 adds one to your die roll. The IT is still another tool of victory, like Foreign Aid and Strategic Warfare. Ignore none of them if you seek it.

3. FOREIGN AID

Rule 33.6 is another new tool for victory or defeat in *3R*. It simply represents diplomatic pressure (read money, bribes, threats) used to prevent unpleasant things. BRPs may be given in the Unit Construction Phase (no more than ten percent of a country's BRP Year Start Sequence total) at a cost of one SR per receiving country. The delivery occurs in the SR Phase, and sometimes requires fleets for transport. If Britain gives to Finland or Germany to Ireland, it costs two SRs. Only Britain, Russia, Italy and Germany can give Foreign Aid. The U.S. (whose money is in such demand these days) can't give it away here.

Italy is the easiest country to consider. Only Spain and Iraq may receive BRPs from it. Thus—unless Variant 1 or 4 is held—anything given serves to create a diversion of British effort. If either of these variants are held, Italy should give the maximum possible, and get the German player to aid him.

Russia is a big foreign aid spender (as always). The trouble lies in the fact that if Russia takes the Bessarbian province, she can give only to Hungary and Bulgaria, per the note in the table (33.61). Russia always seems to have a BRP surplus, so should give everything it can. This could amount to 34 BRPs (nine in 1939, eleven in 1940, and 14 in 1941). That could mean one or both countries won't activate when Germany marches.

Germany's situation is more complex than that of Italy or Russia. It needs units for the campaign in France, which means little (if any) foreign aid outgoing before Winter of 1940. The Minor Allied units are needed in 1941 as cannon fodder in Russia, not to mention their BRPs. As a result, Germany will labor under a 2:1 disadvantage in foreign aid. Perhaps accepting a slower build rate to counter Allied foreign aid for minors and variants may be necessary. For example, instead of building an air unit in Winter of 1939, spend 15 BRPs on Foreign Aid in a Minor or potential variant nation. Such investments can often bring vast advantages. Germany can afford to use some foreign aid after France falls, but will still be at a disadvantage.

Britain lies in the most complex position of all. Most Axis variants hurt, Russia may also need aid, France must be propped up as long as possible, Egypt must be made safe, etc. There is so much bread, so little butter. The U-boat threat will freeze BRPs. Britain can afford to give twelve BRPs in 1939, and perhaps eleven in '40 and '41. Even so, it is hard to give foreign aid where needed most.

When spreding foreign aid, put it where you feel it will do the most good, and give in lump sums of five or six BRPs to each country. Any less is easily countered. The Intelligence Table (33.5) can help reduce the Foreign Aid opponents give on a modified die roll of ten, so a five-BRP expenditure can reduce foreign aid by up to six BRPs. Be careful, for a minor can activate when not expected, or not activate at all.

4. MINOR NEUTRAL OPERATIONS

Provided a Minor Neutral is not conquered the turn of invasion, the player running that country has few options. The ground units must delay the inevitable conquest and, as a result, the Minor usually takes Attrition Operations. However, with some Minors, the air forces survive and *can* sting their enemy. Rule 22.7 lets the air units (on the Minor's turn of play) cross friendly countries' borders to damage their attacker with an offensive option (which is free).

Consider the following case: Denmark, Belgium and Holland have bases for their air in range of K28, K29 and K30. If these minors survive the turn of invasion, and the German Navy is in any of these ports, the air can attack and have a one-third chance

to eliminate one fleet factor each. If inverted air is in range, even that can be attacked. The air DRM would be -1; a -2 Nationality DRM, and a $+1$ factor advantage (Rule 28.434, defender has zero factors and no Nationality DRM).

Yugoslavia and Greece are two other excellent countries to consider. If attacked by Italy, they have four ports in range—Naples, Taranto, Brindisi, and Durazzo. The Italian fleet is very likely to be in one of these ports. If one factor is eliminated, SRs to Africa are cut to three, until the allowable fleet build is built. Those 27 BRPs for that fleet are a heavy expenditure for Italy.

Minor Neutrals normally take Attritions if they survive the turn of invasion, but don't always need to. Especially if the invader can be made to pay indirectly.

5. MINOR NEUTRAL TURNS

This short item notes one interesting fact. An attacked, but not yet conquered, Minor Neutral, can get two turns in a row before the attacker gets second crack—or get no turn at all. How? Look at the Sequence of Play (Rule 55.II.D.5) and Rule 12.26. After the player declares his options, but before movement, the Minor gets his turn. If the current controlling player has engineered a turn flip-flop, the Minor, according to the rules, gets to go again . . . *before the attacker*! Thus, the attacker could suffer the effects of up to four attrition or offensive rounds in one shot before being able to react, two from the Minor(s), two from his opponent. Thus, Germany should think twice before attritioning Denmark and Holland, and Italy likewise with regard to Yugoslavia and Greece.

Note also the last sentence of Rule 22.7. After the player attacking the Minor finishes his turn, restrictions on the Minor's forces operating against the attacker are lifted. The Minor can then attack enemy naval or air forces which weren't involved in attacks on it. This is a powerful tool for a surviving Minor to use as noted above—more so when no major power intervenes, as its offensives are free.

Of course, the opposite of the above is true. If the attacker takes the flip-flop, the Minor won't get to react. This could allow an Italian Winter-Spring conquest of Yugoslavia and Greece, for instance. Remember, the Minor doesn't get an "automatic" turn in between the attacker's turns, it has to be given to it. And the turn could be more—or less— than one.

6. PARTISANS

Section 32 is a great help when the Allies are on the offensive. Uses the partisans can be put to include isolating enemy units, ports or objectives and denying objectives to the Axis (or even deny them to your Allies). For Russia, they can help prevent surrender (32.16).

The best time to begin using Partisans is one or two turns after the Germans are at war with Russia. This is especially easy if a capital is ungarrisoned. If built there, an offensive must be declared on that front or the country's BRPs are lost to Germany until the partisans are eliminated. If done in France, Yugoslavia and Greece the same turn, it could cost the Axis 30 BRPs to eliminate them or Germany faces a loss of from 42 to 72 BRPs. This can be quite crippling. If the Axis has taken losses in Russia and units must be pulled from beach garrisons, a strained Axis SR limit could be advantageous. For instance, Overlord can then be launched against a weak or non-existent beach defense.

Another use for partisans lies in giving additional protection to a small beachhead. If very little armor is available to expand the BH, raise partisans in adjacent hexes controlled by the Axis. The number of hexes to the BH is increased for the Axis, aiding the build-up. Alternatively, if the BH is two hexes deep, build the third hex out. Again, increasing the

depth of the Allied lodgement.

The Greek and Yugoslav partisans are very useful in the 1944-45 period to help take and control their capitals with Allied help. The Allies take the capital using the Allied unit and a partisan, occupying it with them both. Then the big Allied unit SRs out and a one replacement is SR'd in.

Partisans have their uses, but be careful employing them. They can't be built two turns in a row. If eliminated the turn of construction, the Axis knows there is a turn-and-a-half grace before they pop up again.

7. THE WAR OF ATTRITION

For the player on the defensive, this is a most important topic. If the attacker is outside his home country and losses run higher than his SR rate, the attack will weaken. If unit loss isn't high, then the attack will strengthen. This is true no matter the distance.

Consider the following. Germany is attacking Russia. The total Axis losses are less than nine units (assume no Italians involved). The German can SR enough east to make up for losses (and then some), so his attack gets stronger. Or, a second example, Germany loses eleven units. Nine are SR'd east, resulting in a deficit of two. If this continues two more turns, the deficit is now up to six units. Thus, the attack slackens and losses continue to mount, especially if several of the lost units are armor.

As an aside, note that it is easy to focus on Germany, as that country attacks most in the 1939-43 period. We could just as easily look at the U.S., for its Initial Deployment limit of six units per turn make it extremely vulnerable to such attrition. Play of Axis Variant #8 can cut this slender rate to five, crimping the Western Allied offensives in 1944.

The defender can help speed the rate of attrition in his turn by actively trying to drive the attacker beyond his SR rate. To continue the example given above, Germany loses eleven units in Russia, SR'ing nine east. Russia eliminates four more units. In his next turn, the German is down by six units, over and above any losses in his current turn. Thus, even when on the Strategic Defensive, a limited "Tactical Offensive" can yield results with care.

Another tactic to help strain SR rates involves the use of Partisans. If a Nazi-captured capital is open, build them there. The Axis must then call an offensive to clear the capital, or lose the BRPs. If done in France, units may have to come off the beaches, making Allied amphibious assaults easier. If losses occur on other fronts, something must eventually give.

If one side combines SR rates, so that one country's losses can be made up by the other's units/SRs, the total unit loss rate for both countries must go up. Cooperation from allies is essential in other theaters to spread the SR rates around. For example, if Germany makes up losses in Russia with low grade Italian units, efforts must be made in Africa to divert Italian units from where they belong, to ease Russia's defense problems. If either side can keep the war of attrition going long enough, and can afford it, then that side should have the initiative in the game for some time.

8. VOLUNTARY ELIMINATION OF UNITS

This feature is a sometimes useful tactic to "save" units which are encircled. Before moving, one simply removes units from the map. These units so removed are eligible to be rebuilt the following game turn.

The best time to use this tactic is when an encirclement has been partially broken, but can be reestablished in the opponent's next game turn. Any units you believe won't be needed there (like a second defensive line) and that can't be gotten out

by SR are voluntarily eliminated. Now attack to reopen the pocket, bring out any remaining units by SR. It is possible to build armor units in the pocket to recreate the first defensive line and reseal the front, forcing the exploiting unit to "attack back" to reopen their supply lines. The second defensive line would be trapped and useless, so voluntarily eliminate them and rebuild next turn, recreating a new front line just as an original is destroyed. You can buy some time at the expense of a few units.

The important thing is, one need not wait until the end of one's turn to eliminate out-of-supply units. If the opponent doesn't put them out of supply immediately, but instead protects his breakthrough and brings infantry up to encircle, voluntary elimination of units may cause him to close up either an empty pocket, or one smaller than expected.

9. ITALIAN PLAY WITH VARIANT #9

This variant gives Italy a lot of flexibility in opening play. Italy isn't "forced into a war against Yugoslavia", yet has available extra armor and infantry units in 1939. This greatly increases Italy's options in 1939.

The first option is the "traditional" attack on Yugoslavia with the attrition-offensive rounds in 1939. Then Variant #9 is played in the 1940 Year Start Sequence, giving Italy 125 BRPs. The extra troops and the fleet are built in the Spring, with troops going to Libya and the border with France. This course in 1939 may make the Allies believe you don't have this variant, allowing you to play it. *Do* keep five BRPs for counter-intelligence, so your variant isn't nullified before you can play it.

The second option is the same as the first, except Italy takes offensives in both 1939 turns. Try to destroy one or two Yugoslav units and the air on the first turn, build 12 BRPs of ground units and finish Yugoslavia off in the Winter. Variant #9 is still played in the 1940 YSS and a DOW on the Allies in the Summer. The big difference here is Italy has fewer BRPs in 1940.

Option 3 is to DOW the Allies in 1939 and play the variant in 1940. Be certain to build the fleet and expensive ground units in the Fall '39 turn and DOW in the Winter. Otherwise, you may face an Allied flip-flop in 1939 and Rome could fall before anything could be done. Always defend the homeland.

The final option is to play the variant in 1939, preferably during the Opening Setup. This increases, per the rules, the amount of BRPs Italy can spend in '39 to 50. If played at the start of the turn, Italy can only spend 37 BRPs. Once the extra ground units are built, Italy can join Germany in an offensive in the Winter. The drawback to this idea is the Allies are warned that you are coming in early, and they could launch a pre-emptive strike. Always have enough units in Italy proper to defend against this.

Of these options, I consider the last to be the least effective. This is because the 25 BRPs are not put to best use when needed most. Too, Italian intentions are telegraphed, which is one thing you shouldn't do. Keep your plans secret as long as possible, it increases flexibility. When the time is ripe, reveal your variant and move into action.

All in all, Variant #9 gives Italy flexibility in the opening, and provides the muscle you need to expand where you want to. It also provides extra defensive power to last longer, and a headache to the Allies when they face two armor units they didn't expect.

10. RUSSIAN VARIANTS

The variants that affect Russia can be a great boon to offensive hopes and defensive neck-saving. They are three in number—two are obvious, one not so obvious.

The first variant is #9. Russia can use the extra

50 BRPs in 1942 for its allowable builds (especially if played in the YSS), or in 1943 or 1944 to guarantee affording an extra offensive if taking two the same turn (in the Mediterranean and West to conquer Hungary and Rumania, for example). Thirty BRPs in one turn normally takes a big bite out of Russia's yearly BRP allotment; now it is less a problem.

The second Russian variant is #10. It can be a life saver for Russia or a crippling blow to Germany. For example, Germany declares war on Russia in the Fall 1940 turn to get the Russian Winter out of the way in 1940. He then looks forward to four seasons of campaigning beginning in 1941. Variant #10 is played and Russia's hide is saved. No German Winter offensive, and a free Russian Winter offensive instead. Or, play the variant in '42 or '43 and you get a "flip-flop" over the Winter-Spring period even if moving first due to BRP initiative, since Germany cannot take an offensive that Winter turn. This can be very damaging to Germany's plans.

The not so obvious Russian variant is #7. If the Allies hold it, Russia knows Turkey will stay neutral and with the Caucasian flank is secure there is no need to guard it. Else, the Intelligence Table must be used to nullify the variant if the Axis hold it. If this isn't possible, Russia and Britain should combine for a joint conquest of Turkey before it activates. The BRPs should be split and Istanbul (an objective hex) goes to Britain. Both Allies will benefit, and the defense of Turkey is shared, easing the drain on Russian units.

11. DEALING WITH VICHY FRANCE

Once France has been conquered, a potential Axis minor ally is created. It is about the size of Rumania, and has forces comparable to those of Spain or Turkey. It's Vichy France—a boon to the Axis if activated and a headache for the Allies until deactivated.

The Axis view is simple: they want Vichy activated. Should Germany roll a six on the Activation Table (hereafter the *AT*) or play Variant #3, it gets extra troops (perhaps even an armor unit) for the Eastern Front and often at least one fleet in the Mediterranean. Therefore, the German player should consider spending the five BRPs needed for an activation attempt. However, the more BRPs spent for Vichy, the fewer units built for the eastern campaign. On the other hand, Variant #3 will activate Vichy without expending BRPs or a die roll, but Foreign Aid may be needed to complete the process if Britain previously gave Foreign Aid (33.63). Note Rule 33.65 allows the variant counter to stay in play even if Foreign Aid temporarily prevents activation.

The Allied situation vis-a-vis Vichy is more complex—they want Vichy deactivated. Failing that, the Allies want Vichy to remain neutral until it can be eliminated militarily. Foreign Aid can help if Germany rolls a six on the AT or has Variant #3 to play, but only temporarily. No amount of BRPs spent will do the job alone, since Germany can outspend Britain in any one or two areas it may choose. Since Foreign Aid won't work, the only remaining choices are the AT and the military option. The best chance of succeeding at either is over the Spring-Summer '42 turn, when the Allies can get a flip-flop and eliminate Vichy before the Germans can react.

The AT needs a roll of one or less to deactivate Vichy. By waiting until the Spring '42 turn, Britain can get the U.S. DRM of −1, giving a one-third chance of deactivation. If an offensive is called the same turn to land a unit on the continent (how about at Dieppe?), Britain gets another −1 DRM, increasing the probability of success to 50%. If a flip-flop occurs over the Spring-Summer turns, a second try can be made, if necessary.

The military option is more difficult and more costly, because it involves a landing in France, a declaration of war on Vichy, and substantial forces from Britain at a time when Egypt may be threatened as well. According to Rule 49.5, at the end of any combat phase when a non-partisan Allied unit is in Vichy city, those Vichy forces are removed. A one-turn (two if necessary) military option can be accomplished in the following manner: DOW Vichy and take a West Front offensive; using three armor units, invade either R17 or U19, place a BH, and exploit to Vichy city. The city will probably be garrisoned, so seizure of Bordeax may be desirable, followed on the next turn with taking Vichy city. Of course, the first invasion turn coupled with a roll on the AT (−2DRM) could deactivate Vichy, unless previously activated. Then the full military option must be used.

A variant of the military option is to open the Second Front in France and capturing Paris. Rule 49.5 states Vichy units are removed at the *end* of the Axis combat phase Paris is held by the Allies. This alternative military option is the most difficult, since Germany has a chance to recapture Paris and prevent Vichy's elimination. Often, Paris is retaken by Germany, but lost permanently on the next turn.

12. OPENING PLAY AS GERMANY

In a few of the games I've seen in *The Buzzard's Breath*, Germany makes a deal with the Russian player. Germany doesn't garrison Finland or Rumania, allowing the Russian to take them and continue with gobbling Bulgaria and Hungary, even sacrificing Yugoslavia and Greece for peace in the East. I consider this to be a disastrous mistake.

Germany has lost extra troops desperately needed, the very valuable Finnish Front, BRPs, and is now surrounded on three sides (Poland, Romania, and the Balkan fronts) with hostile forces. If perfidious Russia attacks in the Summer of '42 and Britain attacks in the West supported by U.S. BRPs, Germany will likely fall, since it no longer has territory to fall back on.

13. EAST FRONT GARRISON

Germany must maintain an East Front garrison (*EFG*) of 20 combat factors of ground and/or air units. If these factors aren't there, Russia may DOW Germany at any point. When playing *THIRD REICH* in a gaming magazine, or one being GM'd (i.e., when a third party makes the die rolls which aren't announced until later), always plan for the worst when fighting the Polish Army. Expect an exchange (from your attacks) to cut the size of your EFG if any part of it is involved in any attacks.

The ideal EFG is one 3-3 infantry in Finland and six more in East Prussia/Poland (for 21 combat factors). Plan to build up to this lower limit if any of these units are involved in any attacks and exchanges are expected to occur.

Also note that Rumania, with the exception of Bessarabia, is entirely within the Mediterranean Front. Any units here don't count towards the EFG. The only time they might is if Russia doesn't take the Pact area, allowing the Axis to station units in Bessarabia. Don't count on it.

14. BRITISH MEDITERRANEAN NAVAL POLICY

After the fall of France, and barring play of Variant #3 by either side, Britain is in a precarious position in the Mediterranean. Once the Axis build their allowable fleets, they achieve parity with Britain on the high seas until the U.S. arrives. If Britain keeps four fleets in England for anti-invasion and SR work, Italy and England are equal in the number of fleets in the Mediterranean. However, the situation there isn't as bad as it might seem. British fleets can intercept any offensive mission or base change, and expect to win or draw every battle.

The key is Rule 29.5712 (Nationality DRMs). Britain's is +1, Italy's is −1. This means the modified die roll for an equal number of fleets or factors is two to seven for Britain, zero to five for Italy. Thus, on average, Britain should win most battles fought. The loser suffers a loss equal to the die roll difference, multiplied by the number of *complete* nine factor fleets in the battle, the winner loses half of that result. One good fight, and Axis SR to Africa is cut. Even if Britain loses, it loses fewer factors on the worst die roll than if it wins on the best die roll! The incentive for the Royal Navy to fight is there.

Even with three fleets to five, Britain can draw or win. Referring to the Ratio Advantage Charts (RAT), Italy has an advantage of 1.67 to one, enough for a plus two (+2) DRM. Coupled with the Nationality DRM of −1, this yields a total DRM of +1, equal to Britain's Nationality DRM alone!

Sometimes the British player should forego interception—if, for example, he is planning a big offensive in Egypt and the units for it are in Gibraltar. But remember, SRs can go around the Cape (37.3), so the fleets in the Mediterranean are always free for action.

15. GERMAN BALTIC NAVAL OPTIONS

Germany's fleet should confine itself to two areas until "Overlord" is to be launched (unless you contemplate "Sea Lion"). These places are the Murmansk Box and the Baltic Sea. Control of the Baltic Sea gives the German Navy a marked advantage. First, the Nationality DRM is +3 in Germany's favor (Russian's DRM is −1, Germany's is +2). Second, the Russian fleet is usually divided between the Baltic and Black Seas. Germany can often get a Ratio Advantage DRM in addition to the Nationality DRM.

Since Russia is neutral until Fall 1941 at the latest, Germany should take advantage and use an amphibious assault of D35 in conjunction with a paratroop assault on Norway in 1939 or 1940. If the Allies give the Axis a flip-flop, just invade D35 the first turn and use air to aid the infantry in capturing Oslo next turn. Once Norway (Bergen) is taken, the Murmansk Box is available for the fleet to interdict convoys.

When the East Front action starts, the Baltic should stay the scene of action for the Kreigsmarine. If three fleets are available, they can carry two armor units to land at Parnu, outflanking any Russian triple rank defense, and speeding the conquest of the Baltic States. The fleets can also provide needed combat factors in shore bombardment when Leningrad is assaulted. Even if the Russian fleet intercepts, the German Nationality DRM and a probable Ratio Advantage DRM should guarantee victory.

After these operations, until Overlord is launched, only use the fleets in the Baltic for Sea Transport. Murmansk should be totally closed down with capture of Leningrad/Volagda, allowing the German fleet complete freedom of action in the Baltic.

16. RUSSIAN BALTIC NAVAL OPTIONS

After Germany (or Russia) declares war, all restrictions of Rule 21.54 are lifted. Depending on Germany's BRP situation and her garrison effort of conquered countries, there are a few things Russia can do to get in Germany's hair and force a wastage of BRPs by the Axis.

In several games I've seen, Russia puts two, sometimes even all three, fleets in the Baltic. This opens the possibility of costing Germany time and BRPs. Many places in the Baltic aren't garrisoned, as Britain can't reach them. A Russian fleet, however, can. Take a West Front offensive option, and Denmark, Norway and hex K30 are vulnerable

to the Soviet. Using units in Parnu or Leningrad, he can invade Copenhagen, D35 in Norway or K30 in Germany itself, and place a BH. In fact, in taking Copenhagen, the units are in supply (from Copenhagen itself) and Germany loses ten BRPs if not retaken.

Norway and K30 are much the same story. Norway not only offers ten BRPs, but an objective hex (Olso) as well. Even the possibility of the end of interference with Murmansk Convoys arises. Hex K30, with a flip-flop, offers the chance of capturing Berlin before the Axis can react.

These tricks can burn an Axis player once, and are a unique chance to force the Axis to waste resources to recover or prevent the loss of territory and/or BRPs they should be in a position to lose.

17. RUSSIAN OPTIONS IN THE BLACK SEA

Depending on the distribution of the Russian Navy after opening placement, either none, some or very good naval options are available in the Black Sea. If no fleets are allocated, then the only effort will be in the Baltic. The other allocations (one, two or three fleets in the Black Sea) are discussed below.

One fleet gives Russia a *very* limited offensive capability. At best, only one 4-5 armor unit can be Sea Transported, or three ground factors used in amphibious assaults (two units if a 1-3 and 2-3 infantry are used). Then the fleet is tied up supplying those units until a land supply route is opened.

Two or three fleets are very good. Two is best, since some naval presence in the Baltic is desirable. With this choice, amphibious invasions can be supplied and reinforced. If the Axis go through the Crimea to get to Maikop, any landing at U40 can place those Axis units out of supply, and even aid in retaking Sevastopol. Even better than this is a strike at Rumania. It has a beach hex close to Bucharest. Invade with a 3-5 armor unit and exploit with another, and a Minor Ally (complete with cannon fodder troops and BRPs) are lost to Germany. Next turn, Russia could capture Ploesti. If the British meet the other requirements of Rule 33.7, Turkey could well activate as a British Minor Ally.

Admittedly, once the action moves further westward, the Black Sea becomes a backwater. However, the fact that the Germans have no fleets here (barring play of Axis Variant #7) makes it a very attractive area for most of the Red Fleet to operate in.

18. SEA LION

Sea Lion is a viable operation—due to the changes in naval combat and losses. Germany's Nationality DRM is +2, Britain's is +1. If four British intercept three German, the combat DRMs are +2 each, even after Ratio Advantage DRMs are factored in. Only if the Gibraltar fleets intercept is Germany at a disadvantage, and that only happens 50% of the time.

Three fleets can carry two panzer units with three naval factors to give one Shore Bombardment factor. If successful, and a BH is placed on hex J25, a paradrop on K25 during exploitation could give Germany a port to SR into protected by a BH. Sea Transport is also safer then. Ideally, all four fleets should be used, but three are enough. If all four are available, there are three methods of getting the army to shore to consider.

First, have three fleets carry two armor (as above) and one carry an infantry unit. With two targets, only one is catchable, unless there is one target hex or Britain bases the home fleets into more than one port. The second method is to split the fleet into two units apiece. One task force carries an armor unit and the other carries either another armor unit or two infantry units. As above, there are two separate fleets to intercept, making things tougher on Britain. The last method is to group all four fleets

together to carry two armor, two infantry, or one of each. It can be intercepted by British fleets in one home port, but the +2 Nationality DRM is hard to beat.

When should Sea Lion be launched? Possibly on the turn after the fall of France. If France is still alive in the Fall '40 turn, try then. Britain may have sent so much to France and Egypt, its home guard could be weak. Expect Britain to intercept, but don't worry, the naval losses hurt Britain more than Germany at this point. And Sea Lion shouldn't interfere with Barbarossa. The chances of a successful Sea Lion are better than ever these days.

19. OPERATION TORCH

The beginning of the Allied counter-offensive is difficult to plan for many players. The two most important questions are when and where to start. North Africa seems a good place to start because of the Italian early surrender rules and the need to protect Suez/Alexandria.

Why "Torch"? The Axis might fight on two fronts in Africa and are chased out more quickly, thus meeting one of the Italian surrender conditions. French North Africa and Libya give the Allies 20 BRPs when controlled, but this is a relatively minor consideration. A third reason is the capture of Tripoli, an objective hex.

Torch will require close coordination of forces in the Mediterranean and in Britain, because two of the French colonies, Algeria and Morocco, must be assaulted together to prevent an Axis counter-attack from ruining the operation. If the Axis recapture any cities taken by the Allies, the Allied invasion plan and timetable must be changed.

Generally, armored units will be needed to capture the two Moroccan cities, along with Algiers and Oran. Four armor units plus two infantry are the optimum force (and are likely all that will be available), split between U.S. and British units. Basing in Gibralter and Britain, more targets are presented to the Axis than they may be able to handle. An extra British infantry unit can come from the Malta garrison, if needed. Extra fleets beyond those used in the operation will be needed in Egypt and Gibralter for supply, interception, and SR duties.

Allied units assault Casablanca and exploit through Fez, the other Moroccan city. Another armored unit should invade CC11, and a fourth exploit through Algiers, while infantry (perhaps from Malta) land at Oran. This will give the Allies control of all Moroccan cities (opening a land line to Oran next turn) and two of the three cities in Algeria. If the Allies are adventurous, they can station an airborne unit in Malta and drop it on Tunis/Bizerte if unoccupied, causing considerable problems for the Axis.

When should this offensive be launched? If North Africa is Vichy and Vichy isn't deactivated, it is better to wait for success on a deactivation attempt. This may mean Fall 1942 in most cases. If the area is Free French, it won't be necessary to invade, unless the Axis have conquered the area. In that case, an invasion in the Summer or Fall '42 as outlined above can be done. American forces will be needed, so wait until substantial U.S. forces are in Britain. This, again, means the Summer 1942 turn at the earliest.

20. OPERATION OVERLORD

This operation is the most important the Western Allies will ever undertake. It is the beginning of the end of the Axis role in Europe, and the start of obtaining the necessary objective hexes for a British/U.S. Decisive Victory.

There are three tactical objectives. First is getting a descent BH of two connected hexes. Second is getting a port, either protected by a BH, or one

that is the BH. This is needed for Sea Transport and SR purposes. Third is to exploit inland one or two hexes to protect the BH. The most important is securing the BH, with which this passage will concern itself.

In most cases, the Axis will have units worth four to six factors in each beach hex, for a total defensive value of 12 to 18 combat factors. For a 2:1 attack on a hex, a lot of shore bombardment and air power is needed, in addition to the two units allowed to assault. Considering the number of units for the attack and exploitation, seven to eighteen air factors will be needed. Additional factors can be added to the total by use of partisans and airborne units, but these might be better used to seize hexes behind the beach for depth of penetration. Depending on the size of the invasion force, shore bombardment will vary from three factors to nine in most circumstances.

The number of units on each BH you want is important, and port hex stacking limitations must be considered here. Rules 6.1, 6.3 and 29.434 prevent the stacking of more than two units in a port hex used to embark the invasion force. Also, one must have the proper number of fleet factors to carry the invasion force. Generally, twelve nine-factor fleets will be enough to carry six armor units and two infantry. If only attacking one hex for the BH, use one infantry. To embark the invasion force, four port hexes will be needed, with three fleets per port. If a more secure fleet against interception is desired, then a smaller invasion force from three ports, with four fleets per port can be used. The smaller invasion force will free three fleets to use for bombardment, adding nine combat factors to the initial assault. Adding eight ground factors (an American armor and a British infantry unit), plus seven air factors yields 24 factors. Against twelve defensive factors this is the required 2:1 attack. (To achieve a 2:1 against 18 DF, add twelve more air factors.) A supply fleet must have been designated to supply the BH so exploitation can take place.

On exploitation, the armor in reserve comes ashore and goes inland one or two hexes. Some units might be able to be diverted to capture a port. The airborne and partisans can grab hexes adjacent to the BH, allowing the armor to exploit even further, perhaps right to Paris. Thus, in one offensive, a BH two to three hexes deep is established, and is reasonably secure against a counter-attack.

Overlord is best launched after Italy has fallen, spreading the available German troops out. It would make things a bit easier. Figure the Winter 1943 or Spring 1944. The extra time may be needed to get the necessary objective hexes for a victory. With any offensive action by Russia, Overlord should win through.

21. OVERLORD IN '43

Considering the economic situation, board position, forces available, and objective hexes required for victory, a very good case can be made for invading France in 1943, rather than waiting for 1944. By minimal Allied spending in 1942 (especially the U.S.), the economic framework is created for a '43 Overlord. By accumulating the U.S. At Start forces in Britain, the power for invading France is generated. With Germany extended deeply in Russia, the board situation is certainly favorable for such an operation. The large number of objectives the British/U.S. team needs for victory dictates as early a return to the continent as possible.

First, let's consider forces. The American player has, with his At Start forces alone, the capability to get a sizable army into Britain in 1942. Ten infantry, one armor, two air, and four fleets is 17 initial deployments. Even with one 20-BRP Murmansk convoy each turn, this army can be in England by Winter '42, ready for offensive action. If one armor unit and the airborne are also built and

deployed, a considerable amount of exploiting force is available, once the British build their fourth armor unit and the airborne. Add to this the British air in England, and a good BH can be established in France in 1943.

Economically, 1943 is a good year to invade also. The British, with any decent growth from the 1941 through 1943 YSS periods, should have between 150 to 180 BRPs. The U.S. will have over 300 BRPs. The U.S. can maintain this figure, even accounting for SW losses, by sending 60 BRPs to Russia, building one armor and the airborne unit, nine SW, the DOW on the Axis, and one offensive in 1942. This would leave up to 114 BRPs for growth, adding between 40 to 60 BRPs to the U.S. base. This is plenty of economic strength for invading France plus building more armor, air and fleets. In liberating France and Belgium in 1943, Germany loses 57 BRPs desperately needed in the fight in Russia.

Board position is equally important. There are three aspects to consider one Allied, two Axis. The Allies, with large forces of infantry and armor, can easily be ashore for good, even capturing a port. Sea Transport in following turns can increase Allied forces in Europe quicker than one might expect. So an "Overlord" seizing two or three beaches, plus airborne drops to secure adjacent hexes inland could bring breakout before the Axis can hem the army in.

German board position and SR rates are also a prime consideration. With most of the German army committed to Russia in 1943, supporting Italy against early surrender, and with partisans to fight, the Atlantic Wall is likely to be weaker than in 1944, as an invasion isn't expected until then. There may only be one infantry unit on each beach, and no air or armor reserves. By maintaining the threat of knocking Italy out (using infantry, five to six fleets, and limited air support), the Axis SR rates can be strained. With any offensive operations by Russia, something somewhere has got to give. Nine German SRs won't go very far in the face of all this. Italy can't really help Germany here, as prevention of surrender is her primary concern from 1943 onwards.

But when in '43 should Overlord be launched? Considering everything outlined above, I feel Summer '43 at the earliest, and personally prefer the Fall turn. The armor needed may still be in North Africa in the Spring after Torch if one performs that operation in late 1942, and will need one turn to be positioned for the assault. Gibraltor is an excellent staging area for fleets and armor in the Mediterranean, and yet maintains the threat of Husky-Salerno, thus tying Axis forces in the theater. If there are still Axis units in North Africa, so much better, for there will be less enemy units to greet the liberators of France.

There you have it—a conglomeration of ideas for different countries at different times in the best strategic simulation of all time. As I said at the beginning of this article, some ideas are meant to provoke comment. Others are intended to serve as a basis for further development of plans and strategies. I hope they give you a broader outlook on this fascinating game's many faces.

For those fans of THIRD REICH, the Buzzard's Breath is the only 'zine devoted to the play of that game I am aware of. Sample games for analysis, dialogues by the readership on rules, variant rules, short pieces similar to the above, and lengthy articles on strategy enliven each issue. For current subscription rates, contact Mr. Matuschak (whose address is given above). ☆

SHADOWTITAN
A Solitaire System for TITAN
By Brett Murrell

Most wargamers prefer the excitement of a living, breathing opponent the majority of the time. You may even be one of the lucky ones who have a list of possible opponents for every wargame in your closet. On the other hand, you may be one of many who live in a wargamer's desert, a place where only a miserable few exist who can read rules and count odds.

Whether you are rich or poor in opponents, you probably have days when you cannot find or do not want an opponent. You may be looking for some privacy or a wish to relax without a stressful competition. Maybe everyone is avoiding you after your most recent *faux pas*, or you could just feel antisocial for the day. Whatever the reason, most players have days when opponents are not available or desirable—but they still feel like wargaming. The natural solution to this problem is the solitaire game, and I have found the solitaire system for *TITAN* described in this article to be a decent substitute for warm-blooded opponents.

What did I just say? Didn't I see the "AH Philosophy" column (Vol. 20, No. 5) of The *GENERAL* which carried the comment, "Fantasy games . . . are very hard to solitaire satisfactorily; besides, who would care to?" Did I not notice that *TITAN* was rated 58th out of 66 games for solitaire play with a dismal 7.49 rating? I did, and it warrants a brief discussion.

First, the solitaire rating was thought to work on the fact that most players played solitaire to study historical possibilities or to create the "perfect plan". If this is true, *TITAN* would naturally be rated poorly, because it is certainly not historical and it is not suited for "perfect plans". But a host of reasons other than the two above exist for playing solitaire, many for which *TITAN* is ideally suited. People play to relax, to forget their worries, to challenge themselves, to burn time, and out of necessity to learn a new game. *TITAN*'s simplicity and adaptability to variable play allows relaxing or challenging situations, depending on the player's wishes.

Above all, *TITAN*'s structure is highly receptive to solitaire rules. Its ordered board is perfect for a rigid solitaire movement system, and it contains no simultaneous movement or complicated interplayer reactions that could disrupt the game. Keep these in mind as you study the following solitaire system.

The Rules for SHADOWTITAN

The solitaire scenarios following these rules represent the conflict between the Shadowtitan, a powerful but degenerate Titan with the power to awake the dead, and you, the Titan sworn to stop him. In the rules, the word "player" refers to your Titan's forces, and "Shadowtitan" refers to the enemy forces. A few of the rules changes are designed around these few scenarios, but they work equally well for whatever type of scenarios you would like to invent.

All normal rules for *TITAN* stand unless changed in these rules.

SET-UP

Although each scenario has a different set-up, the basic form stays the same. The Shadowtitan begins with two separate armies having different Legion counters and separate Titan leaders. These two armies behave as if they are one normal force; the only difference is that one army will move and conduct its battles with the player first, then the second army will take its turn with a *separate* movement roll.

LEGIONS

All six Legion counters are used for the scenarios. The player receives two sets of Legion counters. The Shadowtitan receives two Legion colors for *each* of his armies. (Suggested color combinations are red-gold, blue-green, and brown-black.) The player never receives more than this number of Legion counters, even if he kills one army; and the Shadowtitan may never "borrow" Legion counters from one army to another.

PLAYER'S LEGIONS

The player operates his legions normally, with the following exceptions:

1. The player may place his counters face-up, since no-one exists to peek at them.

2. Contrary to Rule 4.3 of the *TITAN* rulebook, newly split Legions may contain only one creature if desired.

SHADOWTITAN'S LEGIONS

The Shadowtitan operates his legions normally, with the following exceptions:

1. All Shadowtitan forces are placed face-up, and can be inspected at any time by the player.

2. A Shadowtitan Legion will *never* split before it has seven characters.

3. Once a Legion has seven characters, roll one die for it just before the Legion's Movement Phase. The number rolled is that Legion's *Assumed Movement Range*. This Assumed Movement Range acts as a test movement roll; if the Legion can engage a player's legion by normal movement *within* the range given by the rolled number, it will not split this turn. The Assumed Movement Range roll is conducted each turn *until* the Legion splits.

Example: A seven-character Shadowtitan Legion is in hex 122. The player has a Legion in hex 23. Because the player's Legion is five hexes away on a route usable by the Shadowtitan Legion, the Shadowtitan legion will only split if it rolls a "1-4" on the Assumed Movement Range roll.

4. If a Legion does split, it will split in the following way:

   A. If the Legion has no Titan, it will split four-three (four into one Legion and three into

the other). The player may divide this as he wishes, with one restriction—he may *not* split up same characters (i.e., take two Gargoyles and put one into each Legion). However, this applies only to characters which can muster larger characters; "dead-end" characters like Rangers and Hydra, or characters which can muster no higher because no higher creatures are left in the character's stacks, that can be split up. A list of dead-end characters is given in the play-assist notes following.

Exception: Sometimes, though play, an unnecessary number of the same characters will be in the same Legion. In this case, the player must split off the unnecessary ones. This exception never applies to dead-end characters.

B. If the Legion has a Titan, it will split five-two—with the Titan taking the four characters with him that are highest on the following list:

Titan Legion Split List

1. Colossus	8. Griffon	15. Troll
2. Serpent	9. Unicorn	16. Lion
3. Hydra	10. Warbear	17. Gorgon
4. Giant	11. Minotar	18. Ranger
5. Dragon	12. Warlock	19. Centaur
6. Behemoth	13. Guardian	20. Ogre
7. Wyvern	14. Cyclops	21. Gargoyle

Exception: Sometimes a Titan legion must split four-three because the characters lowest on the list are in a group of three, and are not dead-end characters. This applies, for instance, to three Centaurs, Ogres, Cyclops, Trolls and Lions.

Exception: If only one character lowest on the list is in the Legion, and the next lowest characters are an unsplittable group, the low character is paired with a dead-end character. If no dead-end character exists, the Legion will split *six-one*.

Examples of exceptional splits: In a Legion consisting of a Titan, Guardian, two Giffons, three Lions, the Lions split off to make a four-three split. In a Legion consisting of a Titan, Wyvern, Hydra, three Trolls, Ogre, the Ogre splits off with dead-end Hydra because Trolls must stay together. In a Legion consisting of a Titan, two Griffons, three Lions, Warbear, Centaur, the Centaur splits off alone because Lions must stay together.

5. *Important:* A Legion made purely of dead-end characters will *never* split until it somehow acquires a non-dead-end character.

PLAYER'S MOVEMENT PHASE

The player conducts his Game Turn first. His movement procedure is as usual except for one change. Instead of getting a "First Move Mulligan", the player receives *three* movement re-rolls which he can use at any time during the game. He may use any number of the re-rolls on any single turn.

SHADOWTITAN'S GAME TURN

The Shadowtitan has two separate Game Turns, one for each army. The first army moves, conducts combat and musters; then the second army takes its turn as if it were a different player. However, the Legions of one army may freely pass over Legions of the other army during movement; they *never* fight each other.

This two-army system allows the Shadowtitan forces to attack a player's Legion twice before it moves, but it can also cause "traffic jams" between the two armies when the non-moving army is on a hex where a moving Legion would like to go.

SHADOWTITAN LEGION MOVEMENT

Shadowtitan movement is conducted normally, with three changes:

1. The Shadowtitan has no "First Move Mulligan".

2. The Shadowtitan Legions never use either Titan or Tower Teleportation.

3. The Shadowtitan is *not* required to move at least one Legion.

The player may move the Shadowtitan's Legions in any order, but he should do it quickly, without studying the situation; if one Legion blocks the move of another, he must attempt to move the blocking one first. The player moves the Shadowtitan Legions according to a set of priorities. To use the priorities listed below, first determine which of the *three* types of Legions the Legion being moved is classified as, then follow that Legion type's priority list until the Legion's move has been narrowed down to one possibility. You will find that the lists are easily memorized after a little play experience.

The three types of Legions are shown below. Their listed order is important, because some Legions may qualify for more than one type. In this case, the Legion is of the type *first* listed.

1. Battle Legion—A Legion containing seven characters.

2. Colossus Legion—A Legion containing at least one Minotaur, Warbear, Giant, Dragon or Colossus. This Legion type ceases to exist once all Colossi are mustered from the stacks.

3. Standard Legion—Any Legion not falling under the above two categories.

Priority List for BATTLE LEGION

A. *Attack*: If the Legion can engage a player's Legion, it will. If two or more Legions are attackable, it will attack the one with the most characters. If still tied, the player decides which one the Legion attacks by a die roll.

B. *Pursue*: If the Legion cannot attack, it will move to a position where it will be closest to engaging a player's Legion and within six hexes. Being "close" does not mean mere proximity, but also requires the pursuing Legion to have a move route option to the player's Legion. If the Legion can get equally close to two or more player's Legions, the player decides which way it moves by a die roll.

C. *Position*: If the Legion cannot move so that it is within engagement range (six hexes) of a player's Legion, it will move to a hex that gives it more move route options than it currently has. It will not move into a Tower.

D. If none of the conditions above are fulfillable, it will move if blocking another Legion's move, but only if it does not lose move route options in the process.

Priority List for COLOSSUS LEGION

A. *Circle Muster*: A Legion adjacent to the center circle will enter the circle if it can land on a hex that will give it a Minotaur, Warbear or better. If the Colossus Legion can do this by either an unopposed move or by engaging a player's Legion, it will engage if the player's Legion has less characters; otherwise, it will move to the unopposed hex. A Colossus Legion which cannot do the above for any reason will not move from its hex adjacent to the center, and no further priorities are consulted. If one must because of stacking, the Legion containing the least number of characters will move out of the hex if it can.

B. *Circle Move*: If a Colossus Legion is not adjacent to the center circle, but can move there, it will. If it must attack a player's Legion to do so, it will only if the player's Legion has less characters.

C. *Change List*: If neither A or B is possible, revert to the Standard Legion list below.

Priority List for STANDARD LEGION

A. *Overrun:* A Standard Legion will engage a player's Legion if the player's Legion has at least two less characters. If more than one Legion can be attacked, the Shadowtitan Legion will attack where it is most native to the terrain (player's judgment). *Exception:* A Standard Legion containing a Titan never uses this priority; proceed immediately to B instead.

B. *Muster:* A Legion will move to a hex where it can muster the best character possible. It will fight for the hex if a player's Legion is there as long as it has as many or more characters than the player's Legion. *Exception:* A Standard Legion containing a Titan will not attack unless it has at least two characters more than the player's Legion.

The Legion will then muster the highest possible character on the Muster Priority List. The characters on the list are given in groups, which show characters that are basically equal; if there is a choice between characters of the same group, the Legion will move to the muster hex that gives it the most move route options. If this does not resolve the tie, the player rolls a die.

Muster Priority List

1. Hydra, Serpent
2. Behemoth, Wyvern, Griffon
3. Warlock, Guardian
4. Unicorn
5. Warbear, Minotar
6. Ranger, Gorgon
7. Cyclops, Lion, Troll
8. Ogre, Centaur, Gargoyle (Colossus, Dragon and Giant are not applicable to this list)

If a Standard Legion moves into a Tower and is eligible to muster only the three Tower creatures, the player decides which creature type is mustered.

C. *Position:* The Legion will move to a hex that gives it more move route options than it currently has.

D. *Clear:* If another Legion has a priority to move to the hex occupied by the Standard Legion, the Legion will move clear only if it does not lose move route options in the process.

E. *Stacking:* A Standard Legion will move to unstack if possible.

F. If none of the conditions above are fulfillable, the Legion will not move.

Important: If a Legion is blocked from its best priority by a friendly Legion that will not move, it will settle for lower priorities.

CONDUCTING ENGAGEMENT

The player conducts his own characters normally. He may run the Shadowtitan's forces in one of two ways:

Option 1: Play-off

The player runs both sides as if they were his own. He plays the Shadowtitan's characters to the best of his ability; this is not difficult to do in *TITAN* if you just use common sense.

Option 2: Mindless Rush

For this option, the number of hits required to kill a Shadowtitan character (except Titans) is increased by 50%, rounded down (i.e., a Centaur would die after four hits instead of three). After all, zombie creatures are tough to put out of action. Realize that this does not increase their number of attack dice, *just their endurance.*

When moving, the Shadowtitan forces will move as fast as possible towards the player's forces, but will not enter bramble or snow drifts (unless native) until all other hexes adjacent to enemies are taken. Rangerstrikers will not engage, but will find places to strike from. Shadowtitan characters will always

strike at wounded characters if possible, or gang up on one character.

The Shadowtitan's Titan will not attack until all of his forces are dead. Shadowtitan forces defending in a Tower will not leave the Tower unless attacked by more than two Rangerstrikers. The Titan will always be placed on the center hex of the Tower.

RESULTS OF ENGAGEMENT

The player musters and scores points for a victory like normal. The Shadowtitan does something *quite* different. He scores no points for a victory but rather, after he gets his normal reinforcement or mustering, he takes all player characters killed in the battle and adds as many as can fit into his victorious Legion. He *cannot* take his own killed characters. He takes the characters highest on the Titan Split List first.

The Shadowtitan may not take Lords or Demilords; they are immune to the Shadowtitan's power. If the player leaves characters out of a battle and loses, the Shadowtitan may take these. If the player opts to flee, the Shadowtitan may only take one of the fleeing creatures. He has the full ability in any time-loss victories.

SCORING AND TITANS

Scoring is normal for the players, but the Titan's maximum strength is 15. Angels are still received for every 100 points. The Shadowtitan never scores points, and therefore never receives Angels.

The Shadowtitan has four Titans, two for each army. An army will surrender only when *both* of its commanding Titans are killed. Each Shadowtitan Titan starts at a certain point level and will not change throughout the scenario.

WINNING

The player wins by destroying all the Shadowtitan Titans. The Shadowtitan wins by destroying the player's Titan.

The Scenarios for SHADOWTITAN

The scenarios below represent a series of battles fought in the War against the Shadowtitan, which has not happened and probably never will. The Introduction describes the initial situation. The four scenarios are not only in order chronologically, but also are progressively more difficult for the solitaire player. You should be able to best Scenario One 80% of the time, Scenario Two 50%, and Scenario Three 40% of the time. Scenario Four is very difficult, and you will be lucky to beat it in under 45 turns once out of five games. Good luck and tread softly.

INTRODUCTION

He stood, or rather perched, like a gaunt bird of death, over the slain of the battle, his putrefied eyes inspecting the dead. His own warriors were too slashed apart to be of use to him, but many of the enemy creatures had been strangled or clubbed or run through as per his orders. He approached the horned bulk of a slain enemy Behemoth, mumbled, and grasped it with rotting hands. The Behemoth quivered, moaned, and rose on feet dead—yet alive. The Shadowtitan let go his grasp and uttered a gurgling sneer. The dead army behind the Shadowtitan moaned and gurgled with him as the Behemoth fell into rank.

The gibbering mass of dead began moving down the mountainous slopes like the ooze of pus from a wound. It headed further into the wilderness, towards the enemy—toward you.

You are an able Titan in control of a modest country which you defend with a small but well-trained force. For many years the land prospered under rela-

tive stability—until the Shadowtitan turned his spiteful attention to it. The Shadowtitan's dead armies wash over the borders. Your allies, sworn to help you defend your borders, instead are cowed under the Shadowtitan's might. His ability to turn the dead into mindless armies terrify all but the carefully trained few, who are too scarce to put up much resistance.

You make the painful decision to retreat as intact as possible into the wilderness, leaving the cultured populace open to the Shadowtitan's whims. For months now the armies of the dead have hunted you, and your forces find little rest. But this is the wilderness, and you are a master here. You wish to show the Shadowtitan how fatal a mistake can be . . .

SCENARIO ONE: *Nibbling at the Edges*

First priority for your hunted army is to stay alive, and striking back seems to best way to alleviate pressure. You decide to cut some fingers of the Shadowtitan's groping hands . . .

Player's Forces: Normal setup in Tower 500
Shadowtitan: Army #1 in Tower 300—Two
Legions, each having:
  Titan (begins 8-4)
  Centaur
  Ogre
  Gargoyle
Army #2 in Tower 100—same as Army #1

SCENARIO TWO: *The Tempering*

Sensing the danger you represent, the Shadowtitan throws mainline armies against your small but annoying army. You offer battle . . .

Player's Forces: Normal setup in Tower 500
  Angel, Guardian in Tower 600
Shadowtitan: Army #1 in Tower 300—Two
Legions, each having:
  Titan (begins 10-4)
  Cyclops
  Troll
  Lion
Army #2 in Tower 100—same as Army #1

SCENARIO THREE: *The Melting Point*

After several unprecedented victories, your allies send in ample assistance, and you suddenly find yourself on the offensive. You decide to send a large army to harass the enemy forces building. Three suns later, the remnants come back, shattered and disorganized, pursued by the Shadowtitan's Legions. You have no option but to try an inadequate stand against them. Any error is fatal . . .

Player's Forces: Normal setup in Tower 500
  Lion in Tower 600
  Troll in Tower 400
  Cyclops in Tower 200
Shadowtitan: Army #1 in Tower 300—Two
Legions both having:
  Titan (begins 12-4)
  Warbear
  Griffon
  Behemoth
Army #2 in Tower 100—same as Army #1

SCENARIO FOUR: *A War of Absolutes*

The destruction of the enemy armies opens a route which reaches to the gates of the Shadowtitan's fortress. After regaining strength, you prepare for the final assault. But the Shadowtitan is not staying passive. His personal power continues to grow at an appalling rate, and you realize that soon he will not need armies to conquer. Your attack must be premature; you just hope it is premature enough . . .

Player Forces: Normal setup in Tower 500
  Angel, Warlock in Tower 600
  Angel, Guardian in Tower 400

Shadowtitan: Army #1 in Tower 300—Two
Legions, both having:
    Titan (begins 10-4)
    Troll
    Lion
    Cyclops
Army #2 in Tower 100=same as Army #1
Shadowtitan Legion in Tower 200 (flip face-
down for identification):
    Titan (begins 15-4)
    Ranger
    Gorgon
    Unicorn
    Serpent
    Hydra
    Colossus

Special Rules for Scenario Four:

1. The Shadowtitan Legion never moves. Shadow-
titan army units may move over it normally. When
attacked, the Shadowtitan is always placed in the
center tower hex and moves only if attacked by two
or more *Warlocks*. If the Shadowtitan is killed, the
game is over.

2. Contrary to Rule 19.4, the player receives An-
gels for the half points when an army is destroyed
and disbands; he may place these Angels in any
Legion.

3. If the player can destroy one army before Turn
12, he may add two Angels to any of his Legions.
If he can destroy both armies by Turn 20, he may
add another three Angels anywhere.

4. The player must not only destroy the Shadowti-
tan, but also do it as soon as possible. For this rea-
son, the player must keep track of the turns played.
The player's level of victory depends on how many
turns it takes to kill the Shadowtitan:

TURNS

35 or under	Complete victory. The Shadowtitan never knew what hit him.
36-40	Victory. The Shadowtitan is killed before he causes substantial chaos.
41-45	Nick of Time. The Shadowtitan is killed minutes before he unleashes some very nasty powers.
46-50	Pyrrhic Victory. The Shadowtitan is killed, but not before half of the living creatures in your world are killed.
51+	Too late. End of story.

    Your enjoyment of this solitaire system does not
need to stop with these four scenarios. Feel free to
devise your own scenarios: Shadowtitan II, Return
of Shadowtitan, Revenge of Shadowtitan, Son of
Shadowtitan, Shadowtitaness. A solitaire system is
as enjoyable as you wish it to be and I hope that
for whatever reason you play solitaire, you find this
system to be a reasonable substitute for a living op-
ponent.

☆

WHAT DID YOU DO TO THE GENERAL

    Readers will note that, to make space avail-
able for back cover advertising, the "Opponent's
Wanted" feature has been moved into the body
of the magazine. This move gave the editors the
chance to at last set these ads in a larger type-
face, hopefully easing the collective eye strain
of potential opponents. It also gave us the
opportunity to make the "Letters to the Editor"
a "floating feature", giving us the freedom to
place it on a color-plate when deemed necessary
(as in this issue). We hope that these lay-out
changes meet with your approval.

REFITTING
A Better LUFTWAFFE
By Michael Anchors

LUFTWAFFE is something of a phenomena in the
Avalon Hill Game Company line. Introduced in
1971, the game always sold quite well. It ranked
eighth on the last "All-time Bestsellers" listing. As
the *GENERAL Index and Company History* pointed
out, the superb cover art and appealing title are
major selling features. Nevertheless, the game ranks
52nd (fourth from the bottom) on the "Wargame
RBG". It has been widely cited as unrealistic (Seth
Owens, "A Historian's Guide to AH Wargames"
in Vol. 19, No. 6) and boring (Kenneth Erbey,
"Tactical Level Luftwaffe" in Vol. 18, No. 4).
LUFTWAFFE is thus widely owned, but seldom
played or enjoyed.

That is too bad, because sleeping inside the box
with the diving Messerschmidt is a potentially great
game! Every component of the game, except the
rules, is superb. In this article I have attempted to
revise certain rules to create the exciting game the
designer and developer were hoping to produce.
Assume that all original rules are in effect, except
as modified below:

A. No more than one German squadron (two air-
craft factors) can land or take off from an airbase
per turn. One squadron can take off, and another
land, each turn at each airbase.

B. It takes one full turn to refuel. While the air-
craft type if being refueled, its *Aircraft Time* coun-
ter is placed face down on the German OB card.
Staging alone does not require refueling. It is
handled as in the original rules, except that the utility
of such is limited by Rule 1 above.

C. Aircraft entering a hex to attack enemy aircraft
end their movement in that hex. However, aircraft
may pass through hexes containing enemy aircraft
without attacking.

D. Bombers do not remain in their target hex after
bombing, but continue movement to the limit of their
movement factor.

E. German aircraft sharing a city hex with enemy
aircraft during the German Movement Phase *are*
attacked by city AA fire.

F. Air combat is handled in a completely different
manner than previously:

Step 1: At the beginning of combat in a hex, the
German player openly divides his attacking air-
craft into two groups—A and B. The US player
then divides his escorting fighters into two
groups—C and D. Groups may be redefined for
each combat turn.

Note: In a purely fighter-fighter combat, only
groups A and C would be created.

Step 2: Groups A and C conduct combat against
each other; losses are extracted simultaneously.
The planes in Group C are detached from close
escort duty for the remainder of the quarter.

Note: If Group C is totally eliminated in this
combat, excess casualties are removed from
Group D. If no planes were assigned to Group
C by the US player, Group A can attack Group
D directly. In neither case can Group D fire on
Group A.

Step 3: Surviving aircraft in Group D can now
attack Group B. Group B cannot return fire.

Step 4: Surviving aircraft of Group B now at-
tack the bombers. Bomber defensive fire is
directed at Group B only.

G. Air combat no longer follows the "best against

the best" rule. Players may assign each attacking
aircraft type to any of the opponent's aircraft types
in the hex/group. If that target type is wiped out,
excess losses are taken from other enemy types in
the hex with the same or lower "E" rating (own-
ing player's choice). If no such type is available in
the hex/group, excess "hits" are ignored. An at-
tacking player with several squadrons of one type
may subdivide his squadrons for combat. The
opponent's aircraft types may not be subdivided.

Note: The US player must name a target aircraft
type, not just a target E rating. Consequently, he
cannot selectively attack "school" units, if non-
school units of the same type are in the hex.

H. During the US player turn, US fighters may only
attack German fighters in the air that *began* the
player turn in a hex with US aircraft.

I. American planes may strafe airbases only if the
names of the bases and the I.D. of the strafing planes
are pre-recorded on the Mission Sheet. Bombers
may bomb bases only if the base and I.D. number
of the bomber unit are pre-recorded.

J. For AA fire and strafe attacks, one die is used
to resolve combat. For air-to-air combat, two dice
are used. The *lower* of the two dice is modified by
the E rating difference and applied to the CRT.

*The following rules apply to the Advanced game
only:*

K. *Replacements*: German replacements are
amassed at a rate of one factor for every four un-
bombed aircraft factories. Each quarter in which the
US player bombs the last target of one of the types
listed below, German replacements for the next
quarter (only) are cut in half (rounded down):

    Ball Bearings
    Chemicals
    Steel
    Oil
    Rail Center
    Transportation Center

The US replacement rate is a flat eight aircraft
factors per quarter. This can be increased by one
factor/quarter for each Shipping (i.e., U-boat) target
bombed.

L. There are *no* RAF attacks.

M. *Victory Conditions:* Each turn the US player
receives one victory point for each target-city
bombed in the present and all previous quarters. The
US player wins whenever it becomes inevitable that
he will accumulate 300 or more points by the end
of the April 1945 quarter.

N. Players may use the original Advanced Game
US and German OBs, recognizing that they
represent a hypothetical situation in which the
Fuehrer did not delay jet development. If the players
desire a more historical game, don't substitute jet
units (starting in Jan 1944). However, for play
balance, penalize the US player one victory point
for each squadron of the 9th and 12th Air Forces
he uses each turn. These aircraft are shown in red
on the variant US OB card accompanying this
article. Destroyed or partially destroyed squadrons
from the 9th and 12th Air Forces must be brought
up to full strength before they can be returned to
those forces; hence, for each turn destroyed or
damaged, also deduct one victory point from the
American total.

☆

Advanced Game

Turn											
1	Jan 43	B-17 91 3	B-17 305 3	B-24 93 3	P-38 78 2 7						
2											
3	Apr 43	P-47 3 7	P-47 3 7	P-38 2 7 → Remove from Play one Unit of this type							
4											
5	Jul 43	B-17 95 3	B-17 351 3	B-17 381 3	B-26 323 4						
6											
7	Oct 43	B-17 99 3	B-24 389 3	P-47 352 3 7	P-47 356 3 7	B-26 387 4					
8	Jan 44	B-17 97 3	B-24 445 3	B-24 449 3	B-24 451 3	B-25 321 4	B-25 47 4	B-26 17 4	Spitfire 52 3 6	P-38 20 2 7	
9											
10		P-38 14 2 7	P-39 350 0 6	P-40 324 1 6	P-40 57 1 6	P-47 186 3 7	P-47 325 3 7	P-47 358 3 7			
11	Apr 44	B-17 457 3	B-24 453 3	B-24 459 3	B-24 461 3	B-24 467 3	A-20 409 5	B-26 391 4	B-26 397 4	P-38 364 2 7	
12		P-47 48 3 7	P-51 31 4 7	P-51 339 4 7	P-51 352 4 7	P-51 363 4 7	B-25 52 4	Spitfire 52 3 6	P-47 3 7	P-47 3 7	
13											
14	Jul 44	B-17 34 3	B-24 465 3	B-24 489 3	B-24 493 3	A-20 410 5	P-47 36 3 7	P-47 50 3 7	P-47 406 3 7	P-51 20 4 7	
15											
16		P-51 52 4 7	P-51 332 4 7	P-51 364 4 7	P-40 1 6	P-40 1 6	P-38 2 7	P-47 3 7	P-47 3 7		
17	Oct 44	P-51 353 4 7	P-39 0 6	P-47 3 7	Jan 45	A-26 386 5	P-51 78 4 7	A-20 5	P-38 2 7	P-47 3 7	
18											
19	Apr 45	A-26 391 5	P-51 370 4 7	A-20 5	P-38 2 7						
20											

FILLING THE SKIES
The Woes of B-17 Addiction
By Rex A. Martin

A couple of years ago, I drafted an article on our new game *B-17: QUEEN OF THE SKIES* (Vol. 20, No. 6 of The *GENERAL*). It looked at the odds for various aspects of the game in a fairly straight-forward manner. What I had not anticipated was the response from avid players of this unique solitaire game; even yet I get the occasional letter from a rueful wargamer detailing his tale of woe or saga of success. This game, played in that splendid isolation that allows one to forget disaster and wallow in the glory of an on-target mission away from the prying and critical eyes of an opponent, seems to be addictive. After all, what was the last game *you* played one thousand times?

Take the case of Mike Hagen (Santa Ana, California). He created a squadron to command, the 71st "Ghost" Squadron, and proceeded to launch it on three raids. This meant, quite simply, playing the game with the same destination for each plane of the squadron. In his first raid, on Rouen, some 40 bombers left their base in England (Mr. Hagen supplied full particulars for each of his raids). The average percentage of bombs on target was an incredible 39.8%, but in the process 13 bombers failed to return (seven from the high squadron alone). While claiming 59 enemy fighters downed, he also acknowledged crew losses of 94 KIA and 54 missing. In his squadron's next mission, 15 bombers struck at Lorient; with only three lost, his bombers placed 31.4% of their drop on target and shot down 46 enemy planes. In the third raid of the Ghost Squadron, bad weather over the target (Hamm) and furious enemy activity saw a third of the 15-plane force go down . . . and every other bomber of his

The 500-Plane Raid

Surely the most dedicated player of *B-17* must be Robert Olinski (El Paso, Texas). By August 1984 he had recorded some 520 missions, and decided to pass along the results to us. His initial contact with me was a series of letters considering the percentages I quoted in the article "The Lonely Numbers" in Vol. 20, No. 6 of The *GENERAL*. The following statistics were gleaned from that correspondence. In flying 520 missions, he had used 74 bombers (of which two completed 25 missions and one was still in service). In the process, he had shot down 869 enemy fighters—446 109s, 240 190s and 183 110s.

Target	Damage*	Missions**	Bomb Run Percentage
Abbeville	814	38	21.42%
Amiens	385	20	19.25%
Antwerp	205	23	8.91%
Bremen	245	15	16.33%
Brest	340	13	26.15%
Cherbourg	275	20	13.75%
Emden	245	20	12.25%
Hamm	120	18	6.67%
Kiel	310	25	12.40%
La Rochelle	105	13	8.07%
Lille	700	43	16.28%
Lorient	395	23	17.87%
Meaulte	796	43	18.52%
Paris	295	22	13.41%
Rennes	250	14	17.86%
Romilly SS	335	28	11.96%
Rotterdam	510	29	17.59%
Rouen	370	28	13.21%
St. Omer	491	27	18.18%
St. Nazaire	280	29	9.65%
Vegesack	230	11	20.91%
Wilhelmshaven	275	18	15.28%

*—The aggregate total of the "Bombing Accuracy" Table (O-7) results for all missions flown to the target city.

**—All flights to the target city are shown, including those in which the plane aborted or was shot down before making its bomb run.

The 1000-Plane Raid

By the time Mr. Olinski had completed 1000 missions, he had lost 157 (of 161, only four survived to be retired at the "magic 25") planes. The following outlines those losses, and the fate of the crewmen.

Lost in the Air:

#1 Fuel Tank Fire	10
#1 Fuel Tank Explode	2
#1 Engine Fire	0
#1 Engine Runaway	1
#2 Fuel Tank Fire	18
#2 Fuel Tank Explode	4
#2 Engine Fire	1
#2 Engine Runaway	2
#3 Fuel Tank Fire	16
#3 Fuel Tank Explode	6
#3 Engine Fire	2
#3 Engine Runaway	2
#4 Fuel Tank Fire	14
#4 Fuel Tank Explode	2
#4 Engine Fire	4
#4 Engine Runaway	3
BIP in Port Wing	1
BIP in Starboard Wing	8
BIP in Tail	5
Oxy Fire in Radio Room	1
Oxy Fire in Tail	2
Fuel Leakage (various)	12
Three Engines Out	3
Bombs Explode	11
#1/#4 Fuel Tank Fires	1
#4 Fuel Tank Fire/Elec System	1
Electrical System Out	3

Wrecked upon Landing:

Multiple Neg Modifiers	3
Pilot/CoPilot Dead	4
Starboard Landing Gear	7
Bombs Explode	1
Port Landing Gear	2
BIP in radio Room	1
Crew Abandoned Over England	2

Irreparably Damaged:

BIP in Radio Room	1
BIP in Waist	1

Crew Statistics:

Total Crew: 1745	Ace Status:
KIA—766	Bombadier—1 (claim 5 planes)
DOW—46	Navigator—2 (claim 14 planes)
IH—241	Engineer—30 (claim 258 planes)
Captured—520	Ball Turret—29 (claim 246 planes)
LAS—159	Tail Gunner—18 (claim 131 planes)
Completed 25—13	

unit sustain severe damage. One B-17, the *True Blue II*, landed with a BIP in the radio room, five of the crew KIA and one seriously wounded (every other crewman had sustained a light wound).

It was obvious from the tenor of Mr. Hagen's letters that this was no mere game. He had built the "Ghost" Squadron with his own imagination and wit, and suffered with it as it was sent out into the dice-ridden skies of *B-17*. In effect, he crafted a true campaign version for this solitaire game. By allocating bombers to missions, allowing time for repairs of those damaged, keeping full duty rosters for his ficticious crewmen, and doing the best with what was available in the face of stiff odds, he simulated the concerns of the squadron commanders of the USAAF heavy bomber wing. In the process, he played the game through 70 missions.

Most players who were kind enough to write recounted the harrowing experiences of one bomber early in its 25-mission cycle. (In the original article, I made the comment that the first ten missions should prove to be a "milk run"; a great many players sought to enlighten me contrariwise.) Each had a favorite account to recite, and wrote with verve in detail on the death ride. And each swore they'd be flying again before the day was out!

Like Rudy Ries (Williamsville, New York). He sent up the *Martha My Dear* to attack Lille. A fine approach, a perfect bomb run. But on the return flight she was bounced by three Me-109s and a Fw-190, which set the outboard port fuel tank afire. The *Martha My Dear* would fly no more. But . . . that same evening Mr. Ries launched the *Sexie Sadie*, who was promptly shot to pieces over Antwerp by flak and three waves of enemy fighters. Was Mr. Ries discouraged by all this. Heavens no! The next day he was back at it again, leveling the cities of occupied Europe.

The airfield at St. Omar is reckoned the easiest of targets, since it lies so close to the English bases and one faces paper-thin opposition reaching it. But for Steve Llewellyn (Fredericton, New Brunswick), it proved his bane. In his *Ace of Spades* on its second mission, he flew over and put 20% of the load on target. No sign of the enemy. On the way home, over the Channel, one lone Me-109 wormed its way

past the "little friends" to kill the pilot and ignite the plane's outboard starboard fuel tank. Taking up a new bomber, the *Devil's Dice*, looking to avenge the loss, Mr. Llewellyn again turned for St. Omar. With no better luck. After a 30% bomb run, in a towering epic of the air (which saw the plane shot to pieces, the engineer assume the controls after both pilot and co-pilot had been seriously wounded, and the cursed plane crash at the end of the runway while attempting to land), the *Devil's Dice* crapped out. There are no "milk runs" in these skies after all.

Although most B-17s lost are chewed apart bit by bit (remember Eric Prasse of New Orleans and his letter detailing the destruction of his plane in Vol. 21, No. 2), disaster *can* strike suddenly; and being on the first flight or 25th flight equally provide no protection from those dreaded shots that can put a bomber down in one fell swoop. "Walking Hits" and BIPs will always take their toll—like the loss on their first missions of Steve Gregg's (Oakland, California) *Mission Impossible* and John Ockelmann's (Eugene, Oregon) *Texas Mule Train*. And, of course, the explosion of the bomb load while still aboard has a disquieting effect on novices. Yet, for all that, these birds are tough planes and the odds of losing one to a single shot slim.

Which means, of course, that the skilled player can often bring his flying wreck home. Take the case of Jim Champagne (St. Lambert, Quebec). His *Darling Kate*, "a machine as pretty as its name", lifted off for a run at the Rouen railyards on her third mission. Over the Channel outwardbound, German fighters caused an oil leak. Judging that the oil would hold out until after the bomb run, Mr. Champagne held her in formation. And was repaid well, with a 75% drop on target. But as the *Kate* turned for home, No. 4 engine went out to a flak hit even as No. 3 had to be shut down due to that oil leak. The plane fell out of formation to 10000 feet, and began a remarkable odyssey.

Wave after wave of bandits attacked and, despite the best efforts of the gunners, could not be shaken off. Fighter cover was minimal; the starboard waist guns overheated and jammed, soon to be followed by the ball turret guns. Damage mounted as each fighter made its pass. Rudder failed; the tailplane was damaged; both ailerons were crippled. Still the *Kate* flew on. In Zone 3, this lone eagle was savaged. The radio room was destroyed, the intercom knocked out. Then, even as the coast hove into sight in Zone 2, no less than *three* walking hits rippled through her. The navigator, bombadier and starboard waist gunner all were killed. All the others were wounded. Briefly a fuel tank fire erupted but was put out. Heat and oxygen went out in all sections. Limping in on two engines, the *Darling Kate* bravely put up its nose and landed with relative ease. Now repaired, at last report she was on her way to her "magic 25th".

And so, at last, we come to the sad tale of the demise of my own *Amber Renee*. Looking for a change of pace, I used this 25-mission veteran (with her ace tail gunner aboard) to test Mr. Cirelli's "15th Air Force" variant found elswehere in this issue. Having completed nine missions flying out of Foggia, my tenth was directed at Klagenfurt. In Zone 4, somewhere over inhospitable Yugoslavia, a Me109 lashed her with "Walking Hits—Fuselage." With two crewmen dead and now out of formation, but having no fatal damage, the *Amber Renee* continued valiantly on to bomb the target (20%). But on the way back, again in Zone 4, "Walking Hits—Wings" brought her doom. Only three of the crew survived to be captured by the enemy. Now I must start all over again with a new "Queen of the Skies"—the *Sandra P*.

May you never fall out of formation, and may we someday meet again after that "Magic Mission 25".

☆

ASSAULT ON A QUEEN

Cellular Destruction in SST

By Wesley L. Doody

STARSHIP TROOPERS, to the distain of many wargaming purists, was Avalon Hill's first major step into the science fiction/fantasy realm—and a successful one at that. Unlike the then traditional games, *SST* recreates battles that have not yet happened and therefore does not have a broad "history" to fall back on for those fans wishing to simulate the other battles of this interstellar conflict. Heinlein's book, though thoroughly entertaining, is fuzzy at best when one wants to research for a new scenario. Fortunately, The *GENERAL* has published a number of excellent DYO scenarios. This is intended as another.

This scenario has been designed to explore an aspect of *SST* which is only hinted at by the game and the *GENERAL* addenda. With the exception of Mr. McLaren's "SST Expansion" (Vol. 15, No. 5), the Arachnid Brain Complex includes a Queen and a Master Brain cell which seem to serve mostly as decoration in all previous scenarios. *Assault on a Queen* gives both of these cells a specific (and sometimes devastating) function. This scenario is essentially a search and destroy mission based on modifications drawn from earlier published *SST* articles in these pages. An optional rules section is also included which noticeably alters the play of the game.

The Situation

2157.12.21 (UC): The Terran High Command desperately needed information about the biology and behavior of the Arachnids in order to formulate more effecient battle plans and bio-chemical weaponry. (The M.I. already knew "Bugs" were deadly and skilled warriors, but little else.) Established outposts were reporting that previously "wasted" hive complexes were becoming active. Since the Terran Navy has prevented re-invasion of these planetoids by Arachnid forces, it could only mean one thing—the "Queens" must be reproducing! This could be disastrous to the Terran strategy if such growth went unchecked. ("it takes a minimum of a year to train a private to fight . . . a Bug warrior is hatched able to do this.")

This scenario depicts the attempt by the First Platoon, C Company, Second Battalion, Third Regiment, First Mobile Infantry Division (known as "Warren's Wolverines") to study and destroy a Queen cell on an isolated Arachnid planetoid. Following a previous raid made the day before which had been turned back by excessive casualties, Warren hoped to fulfill his mission by utilizing unrepaired breaches to reach the hive center.

The Scenario

Set Up:

Arachnid: Construct a tunnel complex such that all the breaches listed below are connected by tunnel segments (the listed hexes represent known breaches from a prior Terran raid). In addition to the standard hive complex, a total of 30 additional tunnel hexes may be added to the complex providing that these additional segments are connected via legal Tunnel Construction Procedures. These new segments may be divided in any manner among the Combat Cells and may be used to connect the listed breaches to the complex.

Breach counters are to be placed on the board for all the following: I-15, 1-16, K-24, 0-20, 0-21, 0-26, P-10, P-15, R-16, T-28, T-30, V-10, W-22, Z-12,

BB-19, BB-27, DD-19, EE-17 and JJ-17. The Brain Complex must be constructed according to the circular pattern, but may be labeled in any order so long as the Queen is located in the central cell.

Arachnid forces move *first*. The Arachnid commander has 25 Warriors, 25 Workers, 5 Heavy Beam Weapons and 13 Demo Points. In addition to this compliment of warriors, workers and beams, he may also have several "old bugs" (use the second set of Arachnid counters).

Terran: Force A consists of one M.I. Platoon equipped with four Listening Devices, six DAP, eight HNG, six Nuclear Launchers, six DAR, 12 HE and one BOS (see below, Rule 3). Force B consists of all Engineers and one Special Talent, nine HE, nine NUC charges, one BOS, two beacons and two retrieval boats.

Force A sets up second as per the Initial Drop Procedures. Force B may enter any time after Turn 1 via Soft-Landing Procedures. Beacon location and turn of arrival must be pre-recorded on paper (to be shown to the Arachnid player when the game is over).

Game Length:

20 Turns. All normal rules of *SST* are applicable unless otherwise stated in the Special Rules or modified by chosen Optional Rules.

Victory Conditions:

Arachnid: Prevent Terran victory conditions from being reached *and* accumulate 20 or more victory points as per *SST* Rules of Scenario 5A.

Terran: record biological/behavioral data and destroy the Queen cell *and* prevent the Arachnid player from attaining his victory conditions.

Any other result is considered a draw.

Special Rules:

Though most of the Bug warriors and workers were destroyed in the previous Terran encounter, some cells (even though severely damaged) were still functioning. Combat cells which were damaged or destroyed would eventually be replaced by the Queen by reproduction if she is left alive. The Queen cell, therefore, is central to the future existence of the hive. Additionally, "brain cell replacement" allows for the retention of the "old Bugs" along with the "new Bugs", provided that the "old Bugs" live through the transition.

1. To simulate Bug survivorship from previous M.I. raids, a die is rolled *three* times for each Combat Brain in order to determine the number of Bugs left to that Brain. [*Substituting numbered chits for die rolls will provide a more permanent record.*]

A. Workers: One die per Combat Brain. The number rolled is the number of Workers that survived for that cell. A "6" means no "old" Workers survived.

B. Warriors: Follow the same procedure as in A. above.

C. Heavy Beam Weapons: A die roll of "1" or "2" indicates that the old beam is still functional; any other result means the weapon is destroyed. (If you feel that 33% is too high, change the survival number to "1".)

2. "New Bugs" enter the fray as they hatch. They hatch in the following order:

A. All new Workers hatch on Turn 2.

B. All new Warriors hatch on Turn 3.

C. All new Heavy Beam Weapons (completed by the new Workers) are ready on Turn 5.

D. New engineer units hatch on Turn 6 (there were no surviving engineers). Engineers can begin tunnel repairs immediately upon hatching. On Turn 6, engineers may repair/construct any one *main* tunnel segment connected to the Combat Brain. The engineer may not pass through a damaged tunnel segment in order to perform this activity. Starting with Turn 7, tunnel construction proceeds normally. Starting with Turn 8, new breaches may be constructed.

3. Terrans hope to study the biology and behavior of Bugs using the *Biological Observation System* (BOS). BOS emplacement requires two undisturbed turns (not necessarily sequential) in order for BOS to be successful. BOS records data when emplaced above the Queen's cell *only*, and remain functional depending upon the status of the M.I. unit operating it. (Any convenient marker is used to represent a BOS; when BOS is not in use, the marker is removed from the board.) BOS is not functional if the operating M.I. unit is "stunned". Further, if the operating unit suffers severe damage, the effects on the BOS is determined as per the SW&E Chart. Only one BOS may be deployed at a time.

A. During the first turn of emplacement, during the Arachnid Player Phase the Arachnid Player must identify what—if anything—the BOS is showing (engineer, Combat Brain, Queen, Master Brain, nothing). Remember that BOS recordings of the Queen only serve for Victory Conditions.

B. BOS must be deployed for two complete turns (not necessarily consecutive) without being moved, nor the operator disturbed (as indicated above).

C. Each M.I. may carry only one BOS; possession is indicated on the M.I. Control Sheet. BOS may be exchanged with other M.I. units as per the usual SW&E rules.

4. After biological/behavior data has been recorded, the Queen cell may be destroyed as per normal procedures. Destruction of the Queen still allows other Arachnid units to function normally.

5. Terran Player is not required to execute retrieval of forces before the end of the scenario. The retrieval boat may rescue casualties at the Terran Player's option, however, when it lands with Force B.

The Optional Rules

The following optional rules, adapted from previous *SST* articles published in The *GENERAL*, may be used to add additional flavor and excitement. These rules may be used separately or in any combination desired.

1. Terran Force B may use the Spaceport Landing Rules (found in "Mission Scenarios" in Vol. 15, No. 1). Force B would be allowed to land *without* the use of a beacon in hex FF5 or EE7. Only the turn of arrival need be specified. The retrieval boat must still remain on the ground for one complete turn after arrival, after which it *must* lift off.

If this option is exercised, Force B may not arrive before Turn 3. Spaceport hexes are subject to destruction by Arachnid Demo Charges; a spaceport hex is considered destroyed if a Terran or Arachnid Demo Charge or nuclear warhead has exploded in the hex. If both spaceport hexes are destroyed, Force B must resort to soft-landing procedures. Landings at operational spaceport hexes are not subject to drift or direction of launch.

2. Arachnids may use offensive Demo Charges (also from "Mission Scenarios"). If this option is used, consider the Arachnid complex to have a "store" of 10 additional unused demo points. Brain engineers may emplace them in any tunnel hex or adjacent hex (except in a Queen or Brain hex) during the Special Function Phase. This is a "special function" and would prevent the engineer from operating in any other capacity. Only one charge, regardless of size, may be laid each turn. A charge is considered active at the end of the Special Function Phase during which it was emplaced and may be set off in accordance with usual demo procedures. (If this option is exercised for this scenario, give the Terran Player one additional NUC launcher in Force A.)

3. Contrary to Mr. McLaren's ideas in "SST Expansion", the Arachnid Queen, like any social anthropod queen, is solely a reproductive unit. The rest of the hive functions to protect her and thus to insure its continued survival. Destruction of a Queen would result in the gradual death of the hive. The Queen has no other function.

The situation regarding the Master Brain is different. If a Combat Brain is destroyed, the Master Brain may control any three units of that Combat Brain (one of these units, of course, may be a heavy beam weapon). All excess units are considered functionless and therefore destroyed and removed from play. The Master Brain may switch its control from one destroyed Combat Brain to another during play. However, switching in this manner will result in the immediate death of any surviving Bugs within the abandoned Combat Brain complex. If the Master Brain itself is destroyed, the attack factor of all units of the hive (*except the heavy beam weapons*) is reduced by two.

4. To fit the "Recruits Option" into the campaign designed by Richard Hamblen ("Saga of the Bug Wars" in Vol. 13, No. 6), this scenario should follow Scenario B5 and preceed Scenario 6. In so doing, the *Casualties and Recruits Rules* and *Replaced Commanders Rule* can now be used. If however, this scenario (or any other) is to be played out of sequence, the Recruits option can still be used by simulating casualties in previous actions. To determine the number of casualties, roll one die for each M.I. unit; if a "6" is rolled, that unit is considered to have been a casualty. Each "casualty" must then be replaced with a recruit counter which is subject to Mr. Hamblen's rules.

Final Comments

Die rolls for setting up the Arachnid OOB should be made and recorded in secrecy. As an alternative, a series of numbered chits (1-6) can be substituted for these die rolls—being an easier and more permanent method of record keeping. These chits should be inverted and maintained in the original order of selection and then revealed to the Terran Player only at the end of play. Following this procedure will result in a tactical guessing game for the Terran Player.

Since chance will heavily determine the available Arachnid forces, it is difficult to suggest a Terran battle plan that will be successful in every play of this scenario. One certainty, though, is that by the eighth turn the Terran will be facing at least one fully operational hive. Given the best of Arachnid luck, in terms of enemy counters this could be the equivalent of *two* full hives. It is quite possible that the "luck of the die" may be the foundation for a Terran disaster. As a general tactic, get the I.D.s into action before Turn 4, since you will only have to worry about "old Bugs" for the first three turns. Additionally, HNG can be dropped in existing breaches to hamper early Arachnid tunnel movement, forcing the engineers to reconnect routes instead of allowing them to build new ones.

Whatever your plan, do it quickly because time is on the Arachnid's side. When Turn 10 has ended and the Terrans have fried only ten old workers and have not located the Brain complex, you are in trouble. Remember, your mission is to record and destroy the Queen and depart as soon as possible. Destroy Bugs when you can, but don't be mislead into hunting for every one of them.

Due to the fluctuations in the Arachnid OOB, the Terran Player cannot sit back and expect to win; aggressive play is a prerequisite to victory. The Arachnid Player, on the other hand, can afford to be patient. Take time in designing the tunnel complex. Its early discovery by the Terran player could lead to a very short game. Variations offered by the listed breaches and additional tunnel segments will allow placement of the Brain complex almost anywhere on the board. The stronger the Arachnid OOB, the longer Arachnid attacks can be delayed. However, if the Terran Player locates the Brain complex on the first turn, it is time to throw caution to the winds. Generally, the Arachnid Player should play to achieve his twenty victory points and then adopt a strong defensive strategy. Slugging it out with the M.I. on the surface can be very costly and may result in a draw or a loss.

☆

SO THAT'S WHAT YOU'VE BEEN PLAYING

Titles Listed: 102			Total Responses: 365		
				Rank Times	
Rank: Title		Pub	Last Time	On List	Freq. Ratio
1.	Russian Front	AH	1	2	4.0
2.	Squad Leader	AH	3	32	3.2
3.	Third Reich	AH	2	32	2.7
4.	Advanced SL	AH	7	3	2.4
5.	Up Front	AH	4	14	2.3
6.	Russian Campaign	AH	6	32	2.2
7.	Diplomacy	AH	11	4	2.0
8.	Panzer Leader	AH	5	3	1.9
9.	War & Peace	AH	20	2	1.8
10.	Cross of Iron	AH	8	7	1.7
11.	Flat Top	AH	—	1	1.6
12.	Firepower	AH	13	6	1.5
13.	G.I.	AH	—	1	1.5
14.	Napoleon	AH	—	1	1.4
15.	Titan	AH	—	1	1.3
16.	Ambush	VG	12	4	1.2
17.	Devil's Den	AH	—	1	1.1
18.	WS&IM	AH	16	2	1.1
19.	Bulge '81	AH	10	3	1.0
20.	Guns of August	AH	—	1	1.0

Continuing strong, *RUSSIAN FRONT* again tops our polling of player preferences while *ADVANCED SL* climbs. And, as usual, a number of titles slipped from the poll due to our arbitrary cut-off in listing the top 20 only. Most notable of these must be *B-17*, which for the first time in two and a half years does not appear. Surprisingly, out of nowhere zooms *NAPOLEON* to help displace it; we must have missed something for there was no usual indication of a growing popularity for this old warhorse. Besides *NAPOLEON*, *FLAT TOP*, *G.I.*, *TITAN*, *DEVIL'S DEN* and *GUNS OF AUGUST* again appear in this attempt at reporting current favorites.

CONTEST #131

As a change of pace, we've decided to unshackle the frustrated artistic talents of our readership this time around. Contest 131 is quite straightforward: think up a name and appropriate nose art for a B-17. On the contest entry form on the insert of this issue is a black-and-white rendering of the nose section of a Boeing B-17F, the celibrated version of the "Flying Fortress" found in our game *B-17*. As anyone who has played that enjoyable solitaire game knows, half the fun lies in naming the plane and its occupants. Now, not only do we want you to think up a name, but sketch out the nose art you'd see on it as well. (As any historian of the air war will tell you, the amateur renderings on these bombers became a mark of distinction and a distinctive school of art in itself.) Use any medium you care to, but make sure that your sketch is in color.

To answer this contest, please send your artwork to us on the official entry form (or a reasonable facsimile). Enter the name of your plane on the space provided. Vulgar artwork and names will be automatically dropped from consideration. Selection of winners will be purely subjective, and will be chosen by a panel composed of Bruce Shelley, Charlie Kibler and Rex A. Martin. Ten winning entries will receive merchandise credits from The Avalon Hill Game Company. To be valid, an entry must be received prior to the mailing of the next issue and include a numerical rating for this issue as a whole and a listing of the three best articles. Charlie Kibler's sample "solution" to Contest 131 will appear in Vol. 23, No. 2 and the list of winners in Vol. 23, No. 3 of The *GENERAL*.

THE FIVE-SECOND GAME
RICHTHOFEN'S WAR, The 2nd
By Richard J. Burley

. . . Your engine roaring, you bank hard right and pounce on the blood-red Fokker, your Vickers spitting out bullets that perforate the Fokker's fuselage. As the triplane falls apart and smoke trails across the sky, success fills your soul and victory's glory gleams in your eye. Just as you are about to finish off the German pilot's career, your guns won't fire and your plane stops in midair! . . . Your turn is over. The Fokker's battered remains make a slow wide arc to the left, turning around and now heading for you, its guns flashing! You hear the bullets screaming by you, and you see your upper left wing surface sheer off, sending your Sopwith spinning down and down in a death spiral, out of control! You see the ground coming closer and closer and closer and . . .

How many times has this happened to you, you are winning but your opponent exploits the game's most serious flaw, the "Trading Shots Syndrome," which turns victory into instant defeat? I'm afraid that it is for that reason that I must agree with the words of Mr. Greenwood (Vol.14, No. 4), "RICHTHOFEN'S WAR has always lacked something in the eyes of your editor." This is the reason for my writing this article.

When a friend of mine was once in desperate need for some money, he sold me some of his wargames in a package deal, with *RW* included in this deal. I had my doubts about this game and they were soon confirmed. The reason for my less-than-average enjoyment of elder dean of airwar games is the infamous "Trading Shots Syndrome." True, the *Richthofen's Unexpected Maneuver* cards add much flavor to the game but they do not accomplish all that can be done to improve *RICHTHOFEN'S WAR*.

The time scale of any wargame is one of its often overlooked crucial aspects. In a game where you have tactical aircraft combat, the ten second/one turn time scale of *RW* (see designer's notes) is just too large at these speeds, even for these antique aircraft. It is this too-long time scale which causes the "Trading Shots Syndrome." My solution to this problem is a surprisingly simple one: cut the time scale of the game turn in half, from ten seconds to five seconds. By cutting the time scale in half and not the scale of a hex, one cuts the movement factors of an aircraft in half and in so doing eliminates the capability of being fired on in an opponent's turn, and then in turn making a turn and firing on that opponent (i.e., trading shots).

A. MOVEMENT

As already stated, the cutting of the time scale in half will cut the MF of an aircraft in half. Thus, the maximum speed of any aircraft is cut in half, rounding any fractions up to the nearest MF. The minimum speed of the aircraft is also cut in half, with any fractions being rounded down. If the readers will take note, the maximum speed is rounded up while the minimum speed is rounded down; the sole reason for this difference is to provide the pilots with a greater number of strategic options and possibilities. Note however, that this will leave us with a unique situation. An aircraft in the original *RW* that has a minimum speed of 3, now has a minimum speed of 1 (3 divided by2=1½, rounded down to 1). An aircraft with a speed of one must proceed into the hex directly in front of him on every other turn, and may turn a maximum of only one hexside per hex.

EXAMPLE: A Sopwith Pup is moving at a speed of "1". On this first turn, he must

move the one hex straight ahead. On his next turn he now has the option of moving another hex forward or turning one hexside. If he turns the hexside, he must then move one hex straight ahead next turn. Notice in this example the aircraft has a maneuver schedule B.

As stated in the standard *RW* rules, any aircraft may change its movement factor by up to two MP's at the beginning of his turn. Logically, in half the time one can change speed only half as much, thus maximum speed change is now only one MP per turn.

In the standard game, the first hex any aircraft may enter is the one directly in front of him. This represents the pilot's inability to act instantly to his opponent's move. Common sense would say that since the new time scale is one half in proportion to the old time scale, to equal the pilot's reaction time, one would need to spend twice as many MP's in the new half-time scale. Although this sounds nice, playtesting has shown that two straight hexes are just too great a percentage of an aircraft's total movement allowance, so it should remain at one hex as in the standard game.

B. CLIMB AND DIVE

In *RW*, climbing and diving, like movement, is a direct function of time (meters per second). So, as is true in the movement factors, the maximum climb and dive rates are also cut in half. Note again that the maximum climb rates are rounded up to the nearest 50 meters, while the maximum dive rates are also rounded up to the nearest 50 meters.

EXAMPLE: An aircraft that has a maximum climb rate of 150 meters and a dive rate of 250 meters in the standard *RW*, now has a maximum climb rate of 100 meters (150 divided by 2=75, rounded up to 100) and a new dive rate of 150 meters (250 divided by 2=125, rounded up to 150)

As with the movement factors, the rounding of the climb and dive up is to create more options for the pilots.

The Maximum Dive Speed (Tournament Rules) is also cut in half, but with any fractions being rounded down. It is rounded down to give the pilot greater opportunities to dive. Also, using the Tournament Level Rules, one will get a movement bonus or loss corresponding to the extent of a dive or climb which is one MP for each 100 meters and remaining 50 meters. This is a function of the hex scale of the game (one hex—50 meters) not of the time scale. Therefore, the movement gain or loss is not affected by the new time scale, nor is the 100 meter per hex dive maximum or the gain of maneuver in a dive hex affected, as these too are in relation to the hex scale, not the time scale.

C. OVERDIVE

Overdive (Tournament Rules) is treated just as diving, only now one is allowed only up to an extra 100 meters of dive, intead of the extra 200 meters allowed in the standard game. The reason for this is similar to cutting the dive rates in half. The overdive speed is, like the maximum dive speed, cut in half with any remaining factions being rounded down. Note however, that the special die roll for

aircraft survival ("1" or "2" means that a wing has been lost and the plane has crashed), is not in itself a function of time, but rather a strict percentage of the risk of destruction for diving beyond the safety limits of the aircraft, and as such it is not changed.

D. MANEUVERING

Since the movement points necessary to turn an aircraft's facing within a hex represents that aircraft's ability to turn within a 50 meter hex area in respect to other aircraft and is not necessarily related to time, there is no change to the Maneuver Schedule Chart. Unfortunately, this factor leads to one serious drawback of the new five-second scale. The drawback is that actually, in the real war, most of the aircraft in *RW* could do a complete 180-degree reverse within a radius of 50 meters (one hex) but now with the aircraft's lesser movement factors and no change in the Maneuver Schedule Chart, few aircraft can now do a complete 180-degree turn within a single hex. But I find this a very small loss when compared to the advantage of this new *RW* system.

E. MAXIMUM ALTITUDE

In no way whatsoever does the time scale, old or new, have anything to do with any aircraft's maximum altitude. Maximum altitude depends entirely on the physical capabilities of the aircraft itself. For this reason any aircraft's maximum altitude is not affected in any manner.

F. COMBAT

Here we've come to the meat of the situation and the main purpose of the new time scale. Airplanes will no longer have the MPs to turn circles and trade shots with one another, they now must maneuver to get on each other's tails or try to shake them off if their opponent succeeds at accomplishing this first. First—in combat resolution, since the hex scale is

Figure 1
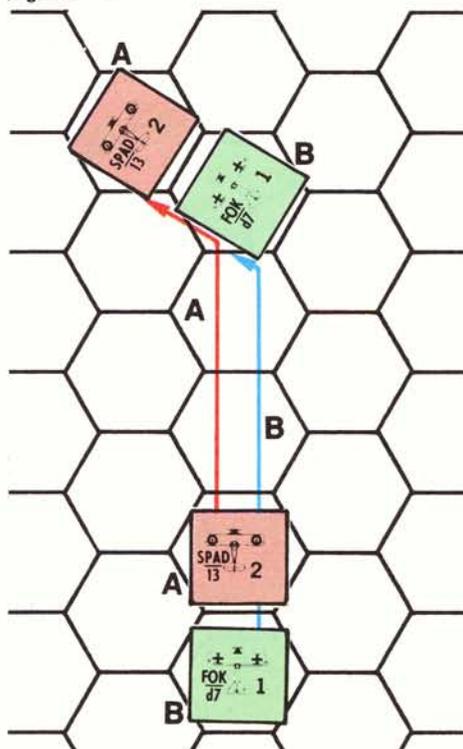
not affected by the five-second time scale, range determination, the 200 meter maximum altitude difference (standard game, it is 250 meter in the Tournament Game) and the angle of deflection (an optional rule which I highly recommend) are affected in no way at all. But the other side of combat resolution, the amount of damage inflicted, is the other side of this coin.

Since it was mentioned nowhere in the Designer's Notes of *RW*, I have assumed that this too is largely a function of time. Since fire usually could inflict about half the punishment in half the time, one could cut the damage inflicted in half. But instead of doing this (which would include messy fractions and rounding), the same effect would be achieved by *doubling* each aircraft's accumulated damage factor. The easiest way to do this is to draw a horizontal line through each of an aircraft's damage boxes, thus dividing it into two new boxes. Now as damage is taken, one simply marks off the number of half boxes as the damage number listed on the combat table (remember that no changes are made to the Target Damage Table.) Likewise, when considering an aircraft's ammunition supply, if it can only fire half as much ammo in one turn on a five-second scale as in a ten-second scale, that aircraft's ammo supply should last twice as long in the new five-second scale. So . . . double each aircraft's ammo supply in the same manner as you have doubled its accumulated damage factor.

G. ACCUMULATED DAMAGE
(Tournament Level)

Tournament Level Accumulated Damage, the reduction of an aircraft's maximum speed and climb capacities due to the damage it has taken in combat, is slightly modified in the new five-second version of *RW*. It begins, as it does in the standard game, when any aircraft has received damage equaling or exceeding one-half of its maximum accumulated damage factor. In the standard game, one MP is lost from an aircraft's maximum speed and 50 meters is lost off the maximum climb for each damage point sustained beyond that aircraft's accumulated damage point. Now, under the one-half time scale, if we take one MP off the plane's maximum speed and 50 meters off its maximum climb for each damage box beyond its midway point,

Figure 2
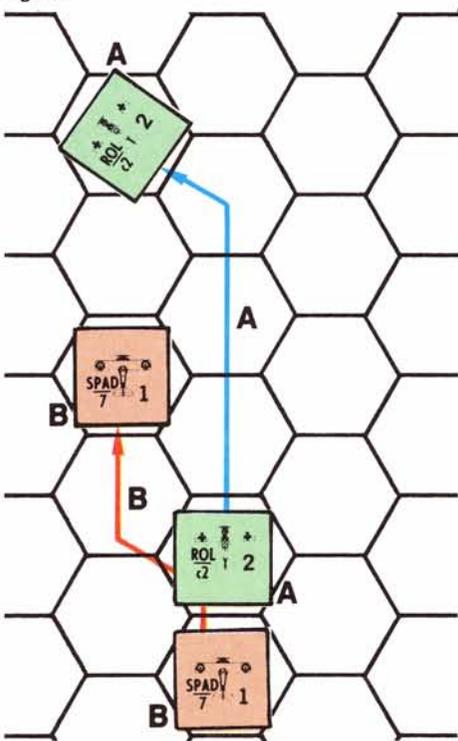
that is equal to two MPs and 100 meters of its climb under the original ten-second scale. This is obviously not equal. So, to keep things equal with one MP and 50 meters per damage box as was true in the ten-second scale, we must use half a MP and 25 meters off the climb per box in this five-second scale. But since we do not use half movement points or 25 meters, we must change the half-MP and 25 meters for one damage box to one MP and 50 meters for every two damage boxes. Therefore, in this new time scale version of *RW*, one must subtract one MP off an aircraft's maximum speed and 50 meters off its maximum climb for every *two* boxes (four half boxes), beyond that aircraft's 50% damage point.

> EXAMPLE: You pilot a Fokker Dr-1 triplane whose maximum speed is "5" and its minimum speed is "1". Its maximum dive is 200 meters and its maximum climb is 150 meters. Its accumulated damage is 10, (see diagram). When during combat, its accumulated damage factor crosses its half damage line at 5-6, the Fokker would lose one MP off its maximum speed and 50 meters off its maximum climb. It would lose another MP and 50 more meters off its maximum climb when it received more damage and had crossed the next line between three and four.

H. SIGHTING (Tournament Rules)

The tournament level sighting rules, that of having to spend the last two MPs with the target aircraft in line of fire, does not fit well with the new shorter time scale. The two hexes in line of fire is just too great a percentage of any aircraft's total movement factor for that turn, so instead of two hexes in your line of fire, reduce it to one hex.

[One last word about combat itself. Some sneaky soul—we all know these, the ones who take advantage of miniscule loopholes in the rules—may try to get his enemy off his tail by doing the move as shown by aircraft A in figure 1. If aircraft B would follow, doing the same move as aircraft A, his last MP would be expended turning in its final hex to keep on A's tail, thereby he would not satisfy the tournament level sighting rules. So therefore aircraft B would be forced, if he ever wanted to attack aircraft A, to take the path shown in figure 2, but now he is one hex farther away and at an angle of deflection. So, instead of allowing this to happen, we shall create one new optional rule: if an attacking aircraft follows the exact same path as the target aircraft (i.e., on his tail the whole time as in figure 1) and finishes his move with the target aircraft in his line of fire (ignoring the tournament level sighting rules), the attacking aircraft *may* fire at full effect. Please note that the attacking aircraft does not have to be adjacent to the target aircraft to employ this new optional rule (see figure 3). In figure 3, aircraft B has been right behind aircraft A during his move, and finished with aircraft A in his sights, at a range of two hexes. Therefore aircraft B may attack, at a range of two.]

I. CRITICAL HITS

Critical hits are one of the most exciting aspects of *RICHTHOFEN'S WAR*, much too exciting to throw them out. I'm sure that the original designers of *RW* did not put the asterisks on the Target Damage Table to indicate a critical hit because it looked like a pretty spot; I'm sure that their placement was dependent on the probability of rolling that number and other such factors. Keeping that in mind, we would not want to increase the rate that critical hits happen. But now, with the damage capacities of all aircraft doubled, leading to twice
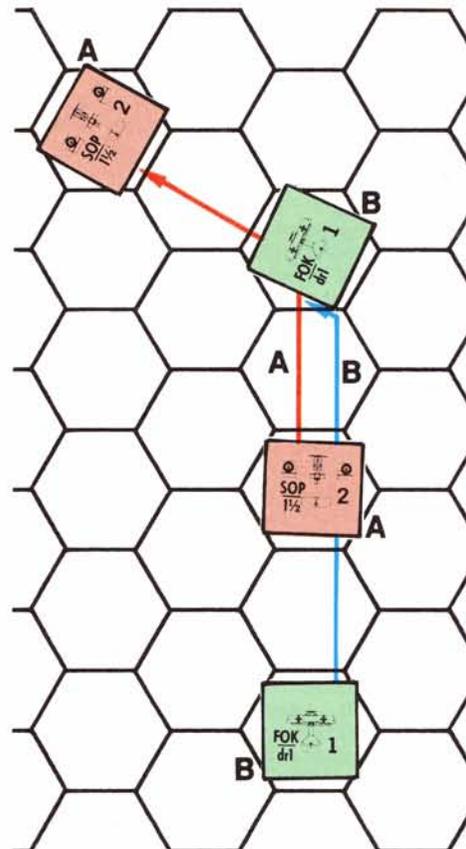
Figure 3

as much combat, the number of critical hits would also roughly double, probably becoming much too important a factor in the game. To make sure that this does not happen, whenever a critical hit is rolled, roll one additional die—if that die comes up a 1, 2, or 3, that critical hit has no effect whatsoever; but if the die comes up a 4, 5, or 6, the critical hit takes immediate full effect as normal.

The effects of any critical hit are not changed by the time scale change except for numbers "4" and "11", (engine damage), and number "10" (gas tank punctured). When the engine is damaged, the damaged aircraft's maximum speed is reduced by ½ that stated on the Critical Hit Table (1MP for hit No. 4, and 2MP for hit No. 11). In regards to critical hit No. 10, in which the fuel tank is punctured and one has but six turns before he is out of gas, those six turns on the original ten-second scale are equal to 60 seconds. That would be equal to *12* turns on our new five-second scale.

J. SUMMARY

This new five-second time scale greatly enhances the excitement of *RICHTHOFEN'S WAR* for all. The main way it does so is by eliminating, (in most cases), the "Trading Shots Syndrome." The first of the two major drawbacks of this modification is that it does significantly increase the length of a game of *RW*. But I see this as a small price to pay for the additional realism and excitement gained. The second major drawback is that, due to the rounding of fractions, there will be a loss of difference between aircraft. One that had a slight advantage in maximum speed in the original version, now may have no advantage. However I think that this loss is also acceptable.

Thus, a simple change in time scale can make a good game great. May this simple change make you gloriously victorious as you take off again, to do battle for the skies!

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Letters to the Editor ...

Dear Sir:

It's Sunday morning. I've been sitting at home, lazily drinking coffee and thumbing through old issues of The *GENERAL*, and trying to psyche myself up for another solo round of *ASL*. A few minutes ago, my mind began to wander a bit further than usual, and it ran something like this:

What is it that makes me so eager to delve into a complex monster like *ASL*, yet so reluctant to play a manageable, enjoyable, updated old favorite like *BULGE*? And what ever happened to other old favorites—*WATERLOO, AFRIKA KORPS, D-DAY, 1914, GETTYSBURG* . . . ? All these have fallen by the wayside, while *SQUAD LEADER* has held my interest for five or six years now. *THIRD REICH* too—that's another game that I never lose interest in. Is it complexity itself that holds my attention? No, that can't be; I've let go of many complex games—*1914, PANZER LEADER, Advanced GETTYSBURG*. No . . . what it is that keeps me motivated to learn and play *ASL* and *3R* is twofold: *expandability* and *stability*.

By "stability", I mean the certainty that the game is still going to be in the market and popular by the time I've mastered it. It would be silly to have taken the time to master *1914* or *STRUGGLE OF NATIONS*, only to show up at a wargame convention and have people say, "You're pretty good at playing *what*?" The way some of these wargames come and go like so many paperback novels, I sometimes wonder if I should go back to Chess.

Stability depends, to a large extent, on "expandability". Give a game room to grow, and it'll grow; box it up into a confined space, and it'll die. *PANZERBLITZ*—even after all these years and after having been overshadowed by *ASL*—still continues to be fairly popular. Why? Because it's expandable—or "open-ended", as the ads say. One never grows tired of it, but simply moves on to new scenarios. The same goes for *ASL* and *UF*; also for *WS&IM, RQ, GSL, SUB*, etc. (Of course, the basic game system has to be good in the first place. There was no reason to be interested in *TOBRUK* when *COI* was around; and alternating movement makes *RW* something of a joke as air combat games go.)

"Gunsmoke" and "Bonanza" were such long-running TV series because they showed something new each week. It would've been easy to grow tired of them if they had just repeated the same plot over and over, with minor variations. But no—they held our interest by showing us something different each time. And, paradoxically, by being ever the same: we came to know and love the familiar characters, the familiar settings and we felt comfortable with them. Having followed *SQUAD LEADER* through its many changes, scenario-by-scenario, I get the same sort of feeling. Each scenario was distinctly different from the last, and each time it was like playing a brand new game. But as time passed, I got to "know" the game itself: I felt comfortable with the 4-6-7 German squads and the 4-4-7 Russians; such basics as stacking limits and the eight-phase sequence-of-play became second-nature to me. That's the secret of success—make a game-system as familiar and comfortable as can be, but keep it ever-different, ever-expanding.

There will always be the gamers who themselves fall by the wayside, by becoming attached to a particular game and dying with it. The so-called "classics" are really only a set of obsolete wargames with a following. "Classics" enthusiasts are like those who watch nothing but re-runs of "Bonanza", and complain that there's nothing good on TV anymore. For them, that's true; and it's good that they've found their niche in wargaming and are happy there. But most of us, I think, want a hobby that will grow with us—one that is always familiar and comfortable, but new and different every time, and ever-expanding.

Tactical games have always been naturally expansive. On a tactical level, there is so little to play in any given scenario that a game *has* to include a variety of scenarios just to keep the customer from feeling cheated. *ALEXANDER THE GREAT* is discontinued now; it had one scenario, and once players figured it out they didn't bother to play the game anymore. *ASL*, *UF* and the FRP games will never have this problem as they all include DYO scenarios.

On the opposite side of the spectrum are grand-strategy level games. Here, no "scenarios" are needed (except to shorten the game). The game itself is so all-encompassing that there are "games within games" as Frank Herbert might have said. In *3R*, the Murmansk Convoy is practically a game in itself; the air

warfare is a game in itself; naval warfare is another; each front is often a game in itself . . . There is so much to plan and consider, and so many possibilities, that it's similar to playing all the *ASL* scenarios simultaneously. And, if that's not enough, there's that long list of variants [*and The GENERAL keeps adding more*].

But "operational-level" games have no natural expansiveness. *WATERLOO* is just *WATERLOO*, over and over again. *BULGE* is just the Battle of the Bulge, in spite of "Plan Martin" and the other "what-if" scenarios. The only way for these games to grow, or expand, is *inwardly*, in the form of variants which allow us to look at the same battle from a different aspect. Almost as a sign of desperation, they include speculative scenarios, inviting us to examine the subject from ahistorical, imaginative angles. Anything to try and keep the game alive in spite of its limited confinement.

Patrick Carroll
Mountain View, California

★★★★★

Dear Mr. Martin:

Recently I received my copy of The *GENERAL* Volume 22, Number 6, with my article "Struggle for El Salvador". I was very pleased with the presentation of the article. However, there are a few clarifications that I would appreciate if you passed on to the readers.

First, I would like to point out that for the squad groups listed in the Scenario Design Guidelines, each of the RN guerrilla squads listed is one of three in an RN "Guerrilla". Second, the FMLN Equipment List should include RFL5 (FAL), RFL7 (various types) and RFL10 (M16A1). As these weapons are listed above in the introduction to the Scenario Design Guidelines, their absence from the Equipment Lists should be of little inconvenience to the reader designing scenarios of his own for the Salvadoran revolution.

Two clarifications should be made in regard to the scenarios. In "Ambush 1984", the LPL available to the FPL player is an LPL3. In "Battle at la Union 1985", 10×GLR2AMO should be added to the Extra Equipment and Ammunition section of the FMLN order of battle.

I am exceptionally pleased with Michael Craighead's "Playtester's Note" that followed "Struggle for El Salvador". I heartily endorse all of his recommendations concerning the employment of optional rules, though I seldom use Rule 16.5 of *FIREPOWER* (dealing with written orders). But I find all others cited by Mr. Craighead to be essential.

James P. Werbaneth
Allison Park, Pennsylvania

★★★★★

Dear Mr. Martin:

Thought you might like to see the statistics after my first 300 "official" games of *UP FRONT*. Please keep us informed of any new developments regarding this increasingly exciting and entertaining game.

Nationality	Victories	Games	Winning %
German	126	205	61.4%
American	63	114	55.2%
British	43	98	43.8%
Japanese	40	95	42.1%
Russian	28	88	31.8%

Opponents	Axis Wins	Winning %	Allied Wins	Winning %
German-American	30	51.7%	28	48.3%
German-British	40	61.5%	25	38.5%
German-Russian	56	68.2%	26	31.8%
Japanese-American	21	37.5%	35	62.5%
Japanese-British	15	45.4%	18	54.6%
Japanese-Russian	4	66.7%	2	33.3%

Scenario	Victories Ger	Jap	Amer	Brit	Rus
Patrol (A)	19	4	17	6	1
City Fight (B)	17	1	4	4	6
Assault (C)	16	4	9	3	1
Rearguard (D)	14	6	5	6	2
Armor Patrol (E)	14	5	9	5	2
Iron Fist (F)	20	4	4	4	7
Armor Advance (H)	3	7	6	4	2
Outpost Line (L)	13	4	1	6	6
Others	10	5	8	5	1

Andrew Fisher
Abington, Pennsylvania

Dear Mr. Martin:

Thank you for printing my article on *PANZERGRUPPE GUDERIAN* entitled "The Quagmire Defense" (Vol. 22, No. 4). I greatly appreciate your judicious editing, having been "burned" by editors on other occasions. Unfortunately, there was a foul-up in the illustrations; Figure 2, instead of being the deployment if neither Russian army can move, was instead a duplicate of Figure 1. Below is what Figure 2 should look like.

Brett Murrell
Jerome, Idaho

I must apologize for the "foul-up" that occurred to the illustration in Mr. Murrell's fine article. When we began paste-up, Dale Sheaffer had completed most of the work, but his departure in the midst of the effort forced Charlie Kibler into the unaccustomed and demanding (given my total lack of any graphics artistry) role of completing the job. In the process, the first illustration was repeated somehow. My fault for not checking the proofs with closer attention. I can only plead that Dale's expertise had made me lazy in this respect. For all of those who wrote pointing out one of my more blatant errors, here is the mysterious second figure for Mr. Murrell's piece as it should have appeared.

★★★★★

Figure 2 of "The Quagmire Defense"

OPPONENTS WANTED

THE QUESTION BOX

HITLER'S WAR

Q. Can Denmark's capital be attacked by land, even though the symbol is on an island?
A. Absolutely yes.

Q. In the Campaign Game, are the U-Boat counters still placed in the At Sea/In Port Boxes or must they be placed on the mapboard?
A. In the boxes.

Q. During one Research Phase, can a player pay one point for research, roll for a result, and then—whether successful or not—pay another point for research on the same item?
A. No, the die roll terminates the research for the turn for any particular item.

Q. Are U-Boats and ASW research unaffected by the rule "Research Special Cases" (page 13, rule 2), since no other player has these items?
A. Yes.

Q. The Soviets attack Poland in 1940. The Axis player does not occupy five Soviet Union hexes. When is Siberian production available?
A. Summer 1944.

Q. What is the Basic Game cost for an amphibious strength point? The rulebook says 6 p.p. but the game board says 5 p.p.
A. 5 p.p. is the correct amount.

Q. There seems to be no reason for the erratic Allied sea route illustrated in the center diagram on page 8 of the rulebook. Is it correct?
A. All of Spain is supposed to be unaligned and therefore should have been shaded pink in the picture. With this understanding, some sense can be made of the route. It is not allowed to travel across unaligned or unfriendly hexsides and, hence, must zig-zag as shown in order to pass through.

Q. Do Axis strategic bombing or missle launches against Soviet-friendly hexes precipitate Soviet mobilization (page 11) as well as ordinary ground attacks?
A. Yes.

Q. May the Axis player amphibiously invade Great Britain in the "Fall of Germany" scenario even though it is not permitted to transport strength points through the Atlantic?
A. Yes. Transport restrictions never extend to amphibious invasions at any time. An invasion may be launched against any coastal hex or off-map box, regardless of distance, to which the player can trace a sea route as defined in the "Sea Route" rules (pages 7-8).

Q. Should the Axis capture of both Gibraltar and France stop Allied supply routing through the Mediterranean Sea as well as strength transport? The Suez Canal is still open.
A. A reconsideration of this situation has prompted the following official change. *Allied supply routes through the Mediterranean are still permitted as long as the Suez hex (D15) remains friendly. Whenever the Axis can gain control of both Suez and Gibraltar, Allied supply routes cease to pass into the Mediterranean. The Allied player can restore supply routing in the Med by the recapture of any one of these three strategic locations: Gibraltar, France or Suez.*

Q. While the Axis fleet is at sea, is the Axis player allowed supply routing throughout the Atlantic?
A. Yes.

Q. How do armies composed entirely of Tac Air strength points defend against advances?
A. They must defend at a strength of "0". A garrison cannot be present with an army (even one with just airplanes).

Q. May Patton be added to an Allied army before the U.S. enters the war?
A. No, he may appear only after America is at war.

Q. The Optional Rules provide the Italians with one Infantry strength point in North Africa at the start of play. Who controls it? May it move in the first turn?
A. The strength point is part of the Italian forces and is unaligned at the start of play. It cannot move while Italy remains unaligned. Once active, it no longer retains any special tie with Italy and becomes just another Axis strength point.

Q. With the Optional Rules, who controls the unaligned Polish infantry when they appear?
A. The Western Allied player.

Q. Can forts be built in Siberia?
A. Yes.

Q. When using the Optional "Naval Action", what happens to the French fleets at sea once France surrenders to the Axis?
A. Each fleet moves directly to the closest French port not under Axis control. Whenever more than one port qualifies, the Allied player selects the port of entry. If a port of entry is unaligned, the fleet remains there—vulnerable to capture by either side. Upon capture, a die roll of "1" or "2" would mean total destruction of the fleet by scuttling. If a port of entry has stayed friendly to the Allies, the fleet remains under Allied control.

DEVIL'S DEN $23.00
Tactical Game of the Fiercest Fighting of Gettysburg

Despite the growing popularity of tactical games, only 21 readers responded in rating *DEVIL'S DEN*. However, the ratings drawn from these twenty-one serve notice that here lies an undiscovered gem—all the ratings (with the exception of that for Completeness of Rules) were well above average. In the normal course of events, the Overall Value (2.69) would have been good enough to place it 16th on our list of 57 titles old and new.

Once again Charlie Kibler's sharpening talents in functional artwork are the most readily apparent strength of this fine redevelopment of the old OSG release. After being drawn into looking inside by George Parrish's superb box art, players are not disappointed—as evidenced by the ratings for Mapboard (1.83) and Counters (2.83). And they find a very playable, balanced and exciting game as well. However, once again Completeness of Rules suffers; maybe game players are more questioning these days and quicker at pushing a game system to its limits. This game remains though, in our judgment, the best boardgame on Civil War tactics available.

Yet it is eminently playable, as the ratings for Complexity and Game Length would indicate. Even the longest scenario should take no more than a lazy Saturday afternoon to complete. In the final evaluation, whether the player be a Civil War buff or just looking for a challenging new wargame, *DEVIL'S DEN* appears to be his cup of tea. The complete ratings for this game are as follows:

Overall Value: 2.69
Components: 2.48
Map: 1.83
Counters: 2.83
Player's Aids: 2.59
Complexity: 4.67
Completeness of Rules: 3.91
Playability: 2.65
Excitement Level: 2.16
Play Balance: 2.34
Authenticity: 2.12
Game Length
   Shortest: 3 hrs., 35 mins.
   Longest: 6 hrs., 48 mins.
Year: 1985
Sample Base: 21

The following games are ranked by their reader-generated overall Value rating. Further aspects of reader response to our titles are indicated by the ratings in other categories. By breaking down a game's ratings into these individual categories, the gamer is able to discern for himself where the title's strengths and weaknesses lie in the qualities he values highly. Readers are reminded that the Game Length categories are measured in multiples of ten minutes (thus, a rating of "18" equates to three hours).

WARGAME RBG

Title	Overall Value	Components	Complexity	Completeness of Rules	Playability	Authenticity	Game Length Shortest	Game Length Longest	Year	Sample Base
1. RF	2.00	2.78	5	4.15	2.56	2.36	15.54	89.64	1985	88
2. GI	2.02	1.93	10	3.01	3.38	1.88	12.84	35.33	1982	264
3. COI	2.06	1.95	9	3.29	3.13	1.99	11.61	29.27	1978	532
4. 3R	2.21	2.67	10	3.81	3.40	2.73	25.94	69.24	1981	273
5. COD	2.23	1.97	10	3.12	3.08	1.85	12.15	30.20	1980	224
6. TRC	2.29	2.53	4	2.52	2.12	3.11	17.44	37.74	1976	540
7. SL	2.31	2.09	8	3.48	2.87	2.45	10.17	27.90	1977	680
8. UF	2.42	2.26	4	2.57	1.31	2.84	4.84	13.05	1983	58
9. B-17	2.51	2.62	3	2.52	1.86	2.21	3.30	11.50	1983	87
10. WS&IM	2.53	3.04	6	2.93	2.67	2.39	7.01	34.90	1975	464
11. FP	2.57	3.10	4	3.12	2.91	2.87	5.42	16.81	1985	85
12. HW	2.59	3.27	4	3.68	2.13	4.25	8.27	21.73	1984	63
13. W&P	2.61	2.76	5	3.46	2.93	3.04	13.04	57.19	1980	374
14. BB'81	2.67	2.46	4	2.53	2.94	2.91	19.62	35.09	1981	277
15. TLD	2.68	1.95	8	3.72	3.54	2.04	24.44	170.68	1980	119
16. VITP	2.72	2.86	2	2.89	2.22	4.52	16.96	22.36	1977	420
17. CAE	2.85	3.01	4	2.32	2.89	2.52	25.14	32.57	1976	252
18. SON	2.92	3.03	10	3.72	4.09	1.92	29.50	81.78	1981	123
19. SOA	2.97	2.79	3	2.73	2.41	3.88	18.22	22.57	1981	232
20. FE	3.00	2.72	7	3.21	3.21	3.00	21.17	49.05	1980	345
21. FRED	3.00	3.41	4	2.93	2.58	2.75	12.25	24.67	1983	58
22. SUB	3.08	2.64	8	3.13	3.08	2.74	9.41	26.15	1978	281
23. CON	3.12	3.64	7	3.08	2.52	3.52	25.8	49.11	1983	73
24. MD	3.13	3.51	3	2.80	2.21	3.44	14.75	20.74	1964	395
25. AZ	3.17	2.72	7	3.18	3.86	2.68	18.63	63.40	1978	292
26. PL	3.19	2.94	7	3.31	3.13	3.50	9.49	25.80	1974	479
27. 1776	3.21	2.97	7	3.09	3.03	3.10	10.16	45.09	1974	373
28. FT	3.23	3.12	10	3.22	3.67	3.16	24.51	57.39	1981	196
29. PB	3.35	3.08	6	3.73	2.90	3.94	10.35	23.07	1970	448
30. BIS	3.45	2.96	6	3.43	3.25	3.06	12.41	26.35	1979	248
31. AAOC	3.52	2.95	5	3.02	3.26	3.07	15.52	26.53	1978	239
32. FITW	3.53	3.14	4	3.17	2.94	3.72	16.14	30.01	1981	100
33. CL	3.54	3.35	5	3.15	3.33	3.79	12.53	25.53	1975	136
34. DL	3.61	4.02	7	3.85	3.22	3.29	6.66	19.94	1981	120
35. GOA	3.66	3.37	5	3.67	3.79	2.98	18.68	60.06	1981	297
36. WAS	3.71	3.67	1	2.48	2.37	5.98	9.09	12.71	1976	396
37. GE	3.72	3.12	6	4.64	4.41	2.84	13.25	57.13	1977	248
38. AF	3.74	4.16	7	3.98	3.34	3.35	5.61	16.02	1980	192
39. AIW	3.74	3.05	8	2.92	3.52	3.06	8.69	25.36	1977	308
40. LRT	3.75	3.60	4	3.53	3.39	2.96	13.04	17.00	1982	56
41. TR	3.80	3.76	3	3.33	3.60	3.70	9.51	25.79	1980	72
42. WAT	3.83	4.17	2	2.95	2.64	5.00	17.08	23.13	1962	296
43. NP	3.87	3.29	3	3.27	2.56	4.89	9.69	14.40	1978	159
44. AK	3.92	4.38	2	3.30	2.48	5.09	14.49	19.13	1964	492
45. AL	4.03	4.05	5	3.69	3.18	3.57	12.34	17.93	1974	217
46. TB	4.06	3.53	7	3.48	4.47	2.50	11.28	32.50	1975	304
47. RW	4.14	3.14	5	3.32	2.91	3.98	4.22	21.15	1973	311
48. JU	4.17	3.20	6	3.61	3.83	3.22	16.01	36.66	1974	193
49. PAA	4.17	4.24	5	3.79	3.99	3.70	15.51	25.24	1981	144
50. DD	4.22	4.07	2	3.04	2.88	4.64	17.54	26.25	1977	367
51. CH	4.39	3.80	4	3.35	3.52	4.67	14.76	24.96	1961	140
52. STAL	4.39	4.29	2	2.88	2.75	5.83	20.57	28.85	1963	320
53. LW	4.45	3.75	5	3.77	3.79	4.79	13.36	34.14	1971	372
54. FR	4.79	3.49	4	3.47	3.75	4.06	16.27	26.95	1972	244
55. BL	4.73	4.16	7	3.65	3.77	5.27	20.43	41.44	1965	336
56. TAC	5.62	5.25	1	2.79	3.23	6.34	11.70	19.29	1961	285

COMING UP NEXT TIME

As expected, our regular rating of the articles found in the issue past was dominated by the lead article—David Bieksza's "A Devil of A Fight" in Vol. 22, No. 5 of The *GENERAL*. Surprisingly, the brief filler piece "For Want of A General" was the next highest rated of the contents. The issue as a whole pulled a middling response (an Overall Rating of 3.43)—and some interesting comments. The random sampling of two hundred readers (in which three points are awarded for a "first" selection, two points for a "second" and one for a "third") gives the following results for the articles:

A DEVIL OF A FIGHT 312
FOR WANT OF A GENERAL 163
ASSAULT ON ROUND TOP 150
MASTERS OF DECEIT 139
THE BATTLE OF THE INNOCENTS 126
THE SUGAR-COATED REBELLION 69
STAFF BRIEFING—SHELLEY 53
AID TO UNIVERSAL REVOLUTION 47
COMPLEAT DIPLOMAT 41
LAND OF THE MIDNIGHT GUN 38
AH PHILOSOPHY 37
HOW TO CRACK A PLANETARY
    FORCE FIELD 25

Untimely death is always a saddening jolt—especially so when the one lost is a friend. Don Robert Munsell, at the age of 39, was killed in an automobile accident while on active reserve duty in Tennessee. For many years, he had been a leading light among wargamers, highly competitive in the AREA, involved in a local wargame club in his hometown, and founder of the annual *SQUAD LEADER* Open. All here wish to extend their sympathy to his wife Peggy and his three children. We have been informed that this year's SL Open, although delayed, will be held in tribute to his memory. Expressions of sympathy from the readership to the family may be directed to Mr. Timothy Deane, P.O. Box 9237, Knoxville, TN 37940.

Mr. Simon Billenness (editor of the "Zine Register") has a new offer for hobbyists. He has established a "Zine Bank", which offers free copies of various amateur periodicals. For a mere $2.00 (to cover postage) and a large self-addressed manila envelope, he will send 20-30 different 'zines. He does his best to insure that all such sent out are still in publication, and that all carry subscription information. He has modelled this service on the very successful "British Zine Bank" he once used as a newcomer to this hobby. He asks only that those who wish to avail themselves of this offer let him know which 'zines they already receive so that he can avoid duplication. Too, he extends his invitation to all amateur publishers who may have surplus copies to send them to him if they'd like their 'zine so distributed for potential subscribers. Mr. Billenness can be reached at 61A Park Avenue, Albany, NY 12202.

At ORIGINS '86, the drawing for winners in the "GENERAL's Subscriber Sweepstakes" was held amidst great fanfare. Unfortunately, none of the winners were present to be honored personally, but the editors would like to take this opportunity to congratulate them. Mr. H. Timmer (of Tholen, Netherlands) was named as the third place winner; a copy of *1830, DARK EMPEROR, EMPIRES IN ARMS, STREETS OF FIRE, PARATROOPER, FLIGHT LEADER* and any further 1986 releases by The Avalon Hill Game Company will be sent to him. Mr. Michael Enos (Coventry, Rhode Island), for his name being drawn second, will receive a life-time subscription to The *GENERAL* (and we are most pleased to add him to our family of friends). Finally, the first place winner will receive the dream of any

Infiltrator's Report

dedicated wargamer—notably a lifetime supply of challenging boardgames to master from the industry leader, The Avalon Hill Game Company. That should quickly make the game collection of Mr. Darryl Burk (Ravenna, Ohio) the envy of wargamers everywhere. We would also like to extend our thanks, and a welcome to new readers, to all those who entered by taking up a two-year subscription to The *GENERAL*. With your support and contributions, the 25th anniversary of this periodical will be a stellar celebration.

Mr. Darryl Burk

Ever had the urge to see your name in print? How about to be an amateur editor (where it's in print a lot)? Mr. Bruce Linsey, one of the leading lights in the DIPLOMACY hobby, has put together a package for would-be amateur editors and DIPLOMACY gamemasters. "Once Upon A Deadline" contains some 200 pages of information, suggestions and views on this aspect of our hobby. All material in this publication pertains to DIPLOMACY, written by many of the best known players, GMs and pubbers. However, many of the sections—Graphics and Art, Modes of Production, Publishing Ethics, to name a few—are worth study by any amateur editor. "Once Upon A Deadline" is available from Mr. Linsey (73 Ashuelot Street, Apt. 3, Dalton, MA 01226) for $3.00.

Richard Snider reports that he is receiving letters from readers mailing late renewals who demand past issues (i.e., those published between their expiration and their renewal) be charged against their new subscription. The official policy should be reiterated—*Such "late" issues will not be supplied as part of their subscriptions; renewing readers must purchase such as back issues (at the normal $3.00 cost).* It is for this reason we request that you "re-

up" your current subscription well before the expiration date to maintain the continuity for your collection. Issues published during a subscription lapse will not be sent; please do not request that they be in your communications with our Subscription Department. Instead, make order for such direct from our Mail Order Department.

The SAFRA Wargame Club, founded to promote wargaming among Singapore Armed Forces reservists, has extended an invitation to all wargamers who may be in the city for short visits. They play, according to the club secretary Mr. Tan, a wide range of games, including 95% of all Avalon Hill wargame titles. They'd welcome any expatriate wargamers for a session or two of their weekly get-togethers. If you happen to be traveling to the Far East, drop a line to Mr. Terence Tan, Secretary, SAFRA Wargame Club, 32 Sian Tuan Avenue, Republic of Singapore (2158).

Contest 129 proved even tougher than we anticipated, since only five entries matched our solution in the major particulars. For most, it seems that they were unsure of what to do with the 20th Georgia to better their chances of victory. The five winners, each to receive a merchandise certificate, are: Jim Burnett, Clinton, TN; William Mulligan, New Paltz, NY; Ryan Schultz, Monterey, CA; Henry Veldenz, Melrose Park, FL; Ron Whaley, Knoxville, TN.

Properly made, the Russian move for Contest 130 guarantees him no less than a drawn game and better than a 67% chance for outright victory. Winning is easy—*guaranteeing* at least a draw is the clever part. Because this is the last Player Turn, the German's maximum FP on the victory hexes has already been determined (barring Hero creation) as 18—six for the SS unit, four for the 4-6-7 and eight for the 4-6-8 as PBF). Therefore, the Russian player must match or exceed that amount or find a way to reduce it. The best solution is to exceed it, because any Russian attack could jeopardize the draw by possibly creating a German hero or sniper attack.
The Russian already has eight FP factors next to the W7 intersection, but these are at some risk from the 4-4-7 in Z9. It would be foolish to chance a malfunction by firing on the German during this last Player Turn when he can instead simply move out of LOS to U8 and advance back into V7 to secure his MMG's eight FP on the victory hex. The other ten FP needed for a draw are guaranteed by declaring Double Time movement with the 5-2-7 and using Bypass movement to enter X2 along the X2/W3 hexside (1MF), entering the building in X3 (2MF), and ending its MPh in Y4 with one remaining MF which it can expend (3MF) in an attempt to recover the LMG (a 67% chance). The 5-2-7 remains completely out of LOS throughout this MPh and therefore cannot be prevented from advancing into Y5 to secure the draw (or a victory if it did indeed recover the LMG). Even if the LMG is not recovered, the Russians can still win if the 2-2-6 reaches Y4 unbroken by surviving the SS First Fire against hex W2 (double timing to W2, bypass in X2, entry of X3 and advance into Y4). The 2-2-6 should move first on the theory that the German will realize too late the Russian intentions and allow it to exit W2 unfired upon. Lastly, it is worth noting that the very fire which prevents the 2-2-6 from winning the game for the Russians could lose it if it prompts a Russian Sniper attack.

	PFPh:	MPh:	AFPh:	APh:	CC:
(1) 2-2-6	—	CX,W2-X2-X3	—	Y4	—
5-2-7	—	CX,X2-X3-Y4	—	Y5	—
3-2-8	—	U8	—	V7	—

Russian Win

On the Road to Moscow . . .

As the German Wehrmacht approached the open steppes around Smolensk, the invasion of the Soviet Union was on schedule. At this rate, the army would capture Moscow and throw the Russians out of the European continent by the time the snows fell.

At the head of the Panzergruppe invading central Russia was General Heinz Guderian, the man who turned the potential of armor into the reality of Blitzkrieg warfare. Opposing him were masses of Soviet infantry and armor determined to defend their homeland, but untried in battle. With Guderian's armor and motorized infantry divisions approaching the ancient city, the stage was set for another encounter with the Nazi juggernaut.

Guderian simulates this critical campaign of World War II, using the acclaimed joystick-driven system from Gulf Strike. On the full-color scrolling map of central Russia, the German player must master Blitzkrieg tactics to encircle and overrun Soviet divisions and drive deep enough into Russia to make the capture of Moscow possible. At your command are infantry divisions, panzer regiments, motorized infantry, panzergrenadiers, even the 1st German Cavalry Division.

The Soviet player must work to counter the German threat, and make attacks capable of cutting off supply to the forward units. While your army is massive, it is also untrained. Soviet units begin play with a hidden strength revealed only at the moment of combat. Uncertainty is always present. The game becomes a tense contest as German units blunder into Soviet strongpoints, while Russian attacks can suddenly turn into a rout.

Guderian has a *solitaire option* allowing you to take command of either the German or Soviet armies, as well as overrun attacks, supply rules, Soviet leaders, rail movement and optional reinforcements. The rulebook introduces new players to historical gaming, explaining clearly concepts such as zones of control, supply, combat and movement. Planning map included.

The battle for Moscow was lost on the fields of Smolensk. Now is the time for you to re-create (and rewrite) history with **Guderian.**
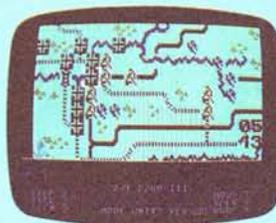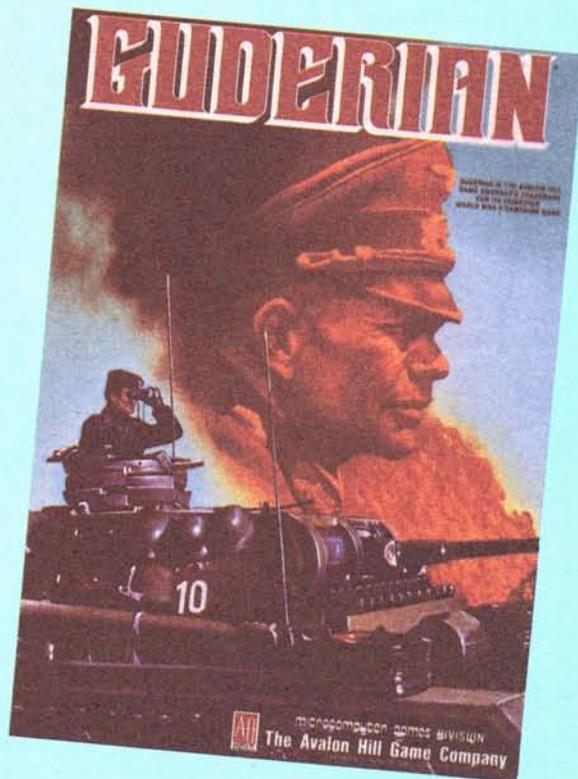
German Panzers overrun Russian defenses west of Smolensk.

COMPLEXITY: Intermediate
SOLITAIRE SUITABILITY: Very high
TIME SCALE: 2 days per turn
MAP SCALE: 10.5 km.
UNIT SCALE: Regiments and divisions
PLAYERS: One or two
PLAYING TIME: 1½ to 3 hrs.

Guderian is ready to run on your Atari® 8-bit, Apple II family or Commodore® 64/128 home computer. $30.00

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INSTRUCTIONS:

Rate each category by placing a number ranging from 1 through 9 in the appropriate space to the right (1 equating ''excellent''; 5, ''average''; 9, ''terrible''). EXCEPTION: Rate items 7a and 7b in terms of minutes necessary to play the game, in ten-minute increments. (Example: If you've found it takes two and a half hours to play the basic scenario of *FRANCE 1940*, enter ''15'' for category 7a.) For an explanation of the categories, refer to the AH Philosophy of Vol. 19, No. 4. Sub-categories are indicated by italics. Enter ratings only for those categories relevant to the game in question. Note that AH's ratings for **Complexity** and **Year of Publishing** have been provided; do not rate these categories.

1.	**Overall Value**	_____
2.	**Components**	_____
2a.	*Mapboard*	_____
2b.	*Counters*	_____
2c.	*Player's Aids*	_____
3.	**Complexity**	5
3a.	*Complexity*	_____
4.	**Completeness of Rules**	_____
5.	**Playability**	_____
5a.	*Excitement Level*	_____
5b.	*Play Balance*	_____
6.	**Authenticity**	_____
7.	**Game Length**	_____
7a.	*Basic/Shortest*	_____
7b.	*Advanced/Longest*	_____
8.	**Year of Publication**	1986

WHAT HAVE YOU BEEN PLAYING?

Top ten lists are seemingly always in vogue these days. Whether the subject is books on the Best Seller List, television's Nielsen ratings, or even games, the public never seems to tire of seeing how their individual favorites stack up numerically against the competition. Our preoccupation with this national pastime is almost akin to rooting the home team on to victory every Sunday. So to further cater to your whims (and to satisfy our own curiosity) we unveil The *GENERAL*'s version of the gamer's TOP TEN.

We won't ask you to objectively·rate any game. That sort of thing is already done in these pages and elsewhere. Instead, we ask that you merely list the three (or less) games which you've spent the most time with *since* you received your last issue of The *GENERAL*. With this we can generate a consensus list of what's being bought. The degree of correlation between the Best Selling Lists and the Most Played List should prove interesting.

Feel free to list any game regardless of manufacturer. There will be a built-in bias to the survey because you all play our games to some extent but it should be no more prevalent than similar projects undertaken by other magazines with a special interest-based circulation. The amount to which this bias affects the final outcome will be left to the individual's discretion.

The games I've spent the most time playing during the past two months are:

1. _____

2. _____

3. _____

Opponent Wanted   50¢

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

NAME _____ **PHONE** _____

ADDRESS _____

CITY _____ **STATE** ____ **ZIP** _____

CONTEST #131
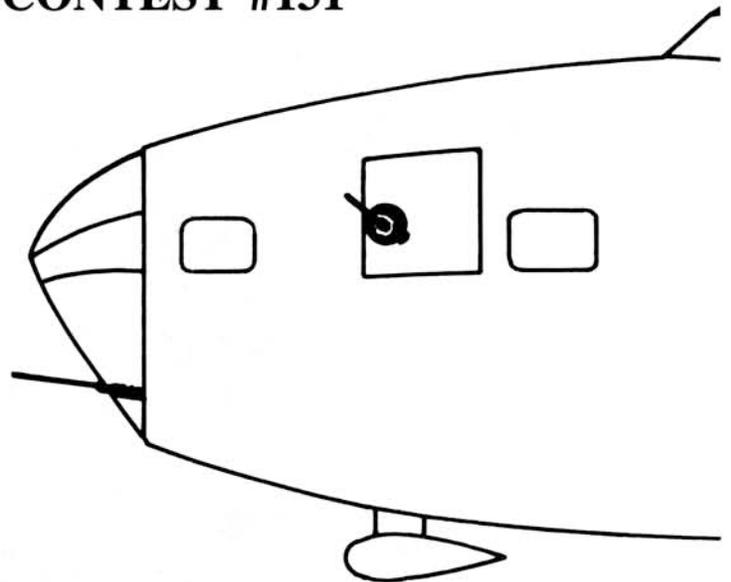
Name of Bomber: _____

Issue as a whole . . . (Rate from 1 to 10, with 1 equating excellent, 10 equating terrible) _____
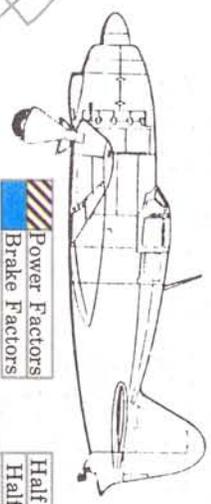
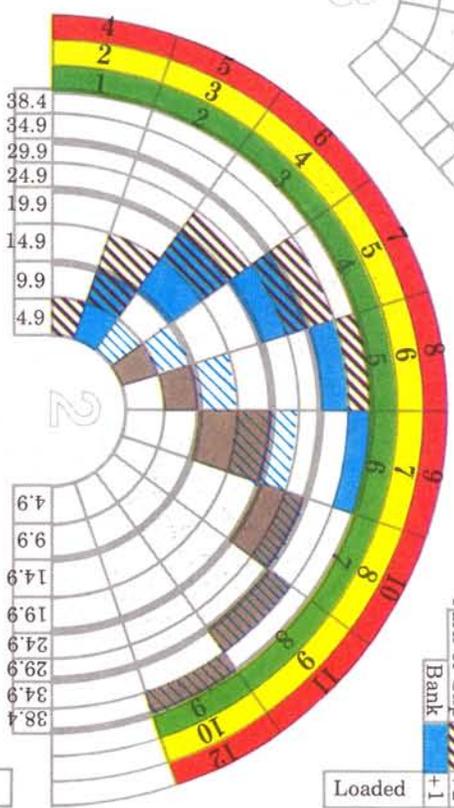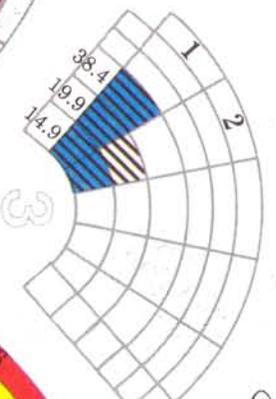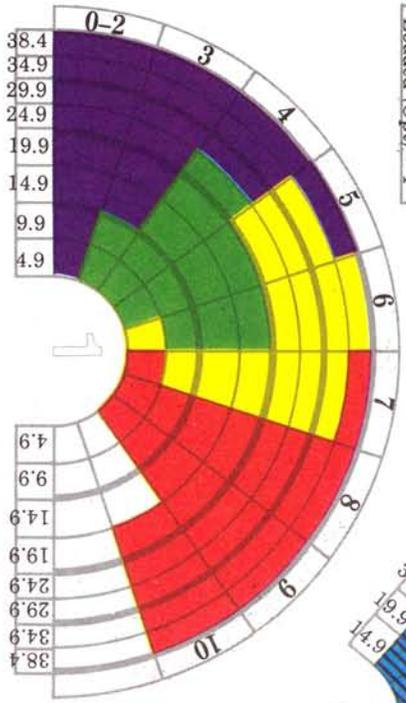Best 3 Articles

1. _____

2. _____

3. _____

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

Jack

Mitsubishi J2M3 Model 11 Interceptor
PV: 18 Engine Type: R Producer: Imperial Japan
J2M series introduced in summer '44. J2M3 was the most produced version of the Jack.
Variant: Field modifications for one 3C or two 3C in a FH firing position. Add +1 (for one 3C) or +2 (for two 3C) to all maneuvers.
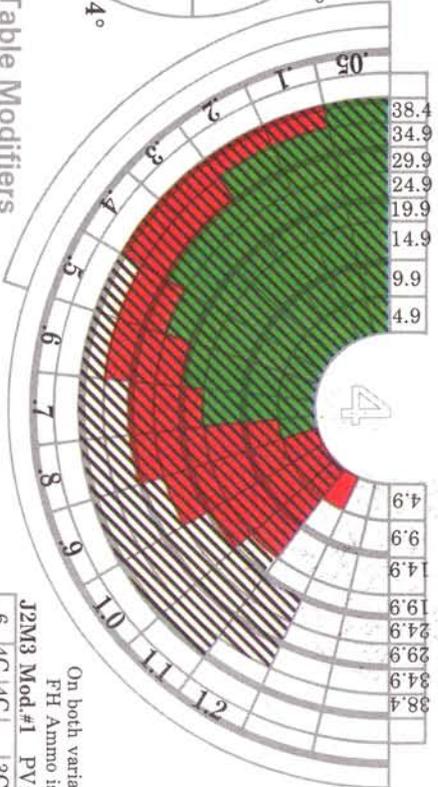
Stall Speed	🟥
Maneuver Sp	🟨
Level Speed	🟩
Dive Speed	🟪
Loaded (Opt) −1	Loaded: Can carry one bomb loaded.

Speed Increments

Speed Change

Blind Spot Modifiers

10°	12°	2°
8°		4°
6°		

High +1 Med +1
A + Ave +1
Be 2w

0 −2 −2
+1 −1 −1
+1 +1 −1 −1
+1 −1
+1 +1 −1 −1
+1 +1 −1 −1
+1 0 −2
−2 −3
−2 −2
−2 −4

Hit Table Modifiers

Silhouette	+2
Fire	+2

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Baltimore, MD 21214

Altitude Change

Maneuverability Requirements

On both variants,
FH Ammo is 3

Variants

J2M3 Mod.#1 PV: 19.

6	4C	4C	
(4)	(5)		(4)
	3C	4C	4C
FF	FF		
		FH	FF

Add +1 to all maneuvers

J2M3 Mod.#2 PV: 20.

6	4C	4C	
(4)	(5)		(4)
	6C	4C	4C
FF	FF		
		FH	

Add +2 to all maneuvers

Target Characteristics

W	5	Cn	5	Mg
F	6	L	2
C	3	C	
E	3	E	
G		E	
FF	FF		
(4)	(5)		4C	4C
			(5)	(4)
			4C	4C

Dive Acceler	+1
Climb Deceler	−1
Max Dive	−.4
Dive Sp. Climb	−.2
Max Climb	−.2

Loaded 🟥🟩 Loaded

Power Factors 🟦
Brake Factors ▨

Half Loop	P	+1
Half Roll	P	+2
Turn or Slip	P	
Bank	+1	Loaded

Irving

Nakajima J1N1-S Model 11 ("Irving") Night Fighter
PV: 18 Engine Type: R Producer: Imperial Japan
J1N1 introduced in August '43; about 470 built. Some carried radar. Primary Japanese Naval land-based night fighter.

Stall Speed	(purple)
Maneuver Sp	(green)
Level Speed	(yellow)
Dive Speed	(red)
Loaded (Opt) −1	

Speed Change

Power Factors (hatched)
Brake Factors (blue)

Half Loop	P (brown)
Half Roll	P (light blue hatched)
Turn or Slip	+2 (hatched)
Bank	+1 (blue)
	Loaded

Maneuverability Requirements

Dive Acceler	+1 (hatched)
Climb Deceler	−1 (red)
Max Dive	−.2
Dive Sp. Climb	−.1 (red)
Max Climb	−.1 (green)
	Loaded

Target Characteristics

W	6	Cn 8	Mg		
F	6	L	2		
C	3	C			
E	3	E		E	3
G		8C¹	8C¹		
		1(5)¹	1(5)¹		
		FH	FL		

Variants

Speed Increments

Altitude Change

Hit Table Modifiers

Silhouette	+3
Fire	0

Blind Spot Modifiers

High / Med / Low / Above / Below

12° 10° 8° 4° 2° 16°

Speed Change

Goshiken
Kawasaki Ki-100a Type 5 Fighter

PV: 18 Engine Type: R Producer: Imperial Japan
Production began spring '45. About 400 aircraft produced.
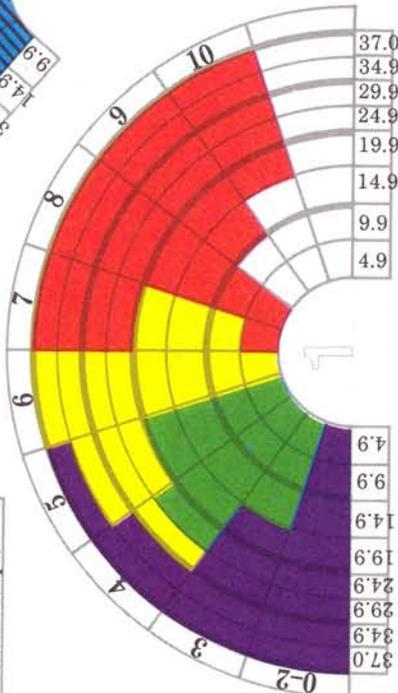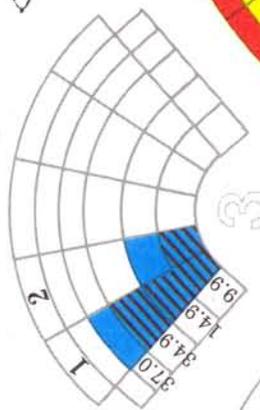Variant: Ki-100b. PV: 18. See different modifiers for blind spots.
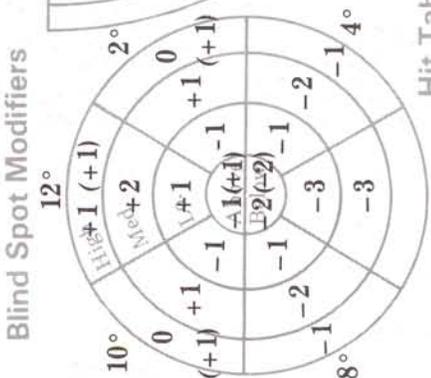Loaded: Can carry two bombs.
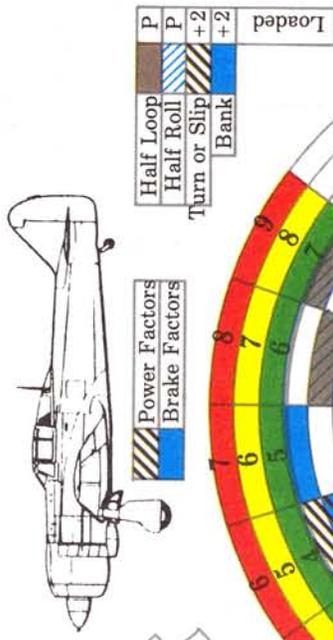
	Stall Speed
	Maneuver Sp
	Level Speed
	Dive Speed
	Loaded (Opt) −1

	Power Factors	
	Brake Factors	

Maneuverability Requirements

		Loaded
Half Loop	P	P
Half Roll	P	P
Turn or Slip	+2	+2
Bank		

		Loaded
Dive Acceler	+1	
Climb Deceler	−1	
Max Dive		−.3
Dive Sp. Climb		−.2
Max Climb		−.2

Target Characteristics

W 5	Cn 10	Mg 5
F 6	L 3	
C 3	C	
C 3	E	E
G 2M	E	2M
(4)	4C	4C
	(5)	(4)

Variants

Ki-100b PV: 18.

Speed Change

Altitude Change

Speed Increments

Blind Spot Modifiers

Hit Table Modifiers

Silhouette	+2
Fire	+2

(Modifiers for Ki-100b)