

## LUFTWAFFE ANALYSIS

by Scott Duncan and Lou Zocchi

*LUFTWAFFE, although having been around for quite some time, has never been the subject of a major analysis. With this thought in mind, we approached noted wargamer Scott Duncan for his opinions. After almost half a year of concentrated study, Scott sent us the article which follows. We think you'll agree with us that it is the most comprehensive, yet not overly assuming, piece yet done on this particular game.*

*For an historical touch we went straight to the game's designer. Lou Zocchi has long felt that the lack of play balance in his game is due to the fact that the German side is not handicapped as it was in real life by inept leadership. The fact that wargamers do not make the same mistakes that Goering did, makes it very hard for the Americans to repeat their real life performance. It is Lou's historical presentation which precedes Scott's study.*

Although the loser of a war may have made better decisions than the victor, his conduct is always the subject of closer scrutiny on the assumption that perhaps he could have changed the outcome by making a better choice. While there is no valid reason to suppose that the Germans made more mistakes than we did, it is definitely more interesting to contemplate their choices and ask what would have happened if ...?

Most certainly our major blunders will never receive the degree of scrutiny we accord our adversaries. If you think we didn't make any, you've forgotten about Roosevelt's decision to make Hawaii into a Pacific bastion, Harris' decision to bomb workers' homes instead of their factories which produced the weapons of war, or our own bullheadedness which sent unescorted bombers over Germany in broad daylight in the mistaken notion that they could defend themselves, despite British warnings and ample evidence to the contrary, etc.

During my Luftwaffe research, I found that two key men made more than their share of bad decisions. Considering these bad judgments has left me wondering how the Germans managed to hold out as long as they did.

The two men to whom I refer are Herman Goering and his lesser known assistant, Ernst Udet. Neither man was qualified for the position he held and each penalized the Luftwaffe with faulty judgments. Although Udet was far more competent than the bumbling Goering, he was overmatched by the responsibilities thrust upon him. Unfortunately for him, the mistakes he made were so enormous that even Goering began to realize what was happening.

### **GENERAL,LUFTZEUGMEISTER Ernst Udet**

Ernst Udet was selected by Goering for his Luftwaffe post because his 62 victories during WWI made him a national hero second only to Von Richthofen. He was a gay, reckless fighter Pilot who thrived on challenge in the air. During the twenties he was an acrobatic barnstormer and in the early thirties performed as a flying stunt man for the movies.

Goering sent Udet to discover if the American aviation industry had anything which would interest the Luftwaffe.

During his visit, Udet flew and fell in love with the Curtis Hell Diver which could dive vertically from great heights to drop heavy bombs with fantastic accuracy. Whereas the accuracy of level bombers was abysmal, the dive bomber averaged 33% of its bombs on target, which was considered fantastic in those days.

Udet persuaded Goering to buy two demonstration machines but was unable to gain support for his ideas until after he accepted a Luftwaffe position. Then he found himself competing with General Wever, the first Chief of Staff, who wanted heavy strategic bombers; Goering, who wanted fast, twin-engined medium bombers, and a third faction who demanded a strong fighter arm.

Udet accepted an appointment as a colonel and became "INSPECTOR OF FIGHTERS AND DIVE BOMBERS" in February of 1936, to assure that his dive-bombers were developed. When General Wever was killed in an air crash on June 3rd, 1936, several Luftwaffe leaders scrambled to promote their pet projects. Major Wolfram von Richthofen, cousin of the famous ace, sent out directive LC 2 No. 4017/36 on June 9th, which said, "Further development of the Ju 87 (dive bomber) shall be discontinued"! On June 10th, Udet took over the technical office and saved his brainchild while Richthofen was sent to Spain as Chief of Staff for the Condor Legion.

Udet used his new position to lower heavy bomber priorities while raising the priority of his beloved dive bombers. His passion for dive-bombing was to become the Frankenstein monster that would return to destroy its creator.

Udet's first major error was in June of 1938 when he flew the He 100A fighter to a new world speed record. The Heinkel fighter hurtled along at 394.4 mph which substantially outpaced the 290 mph Me 109B & C fighters it was designed to replace. The He 100 was further refined and improved until the standard production model was reaching speeds of 416 mph with the same engine used by the Me 109. The Heinkel fighter was cheaper to build, involved fewer man hours in its construction and could fly 550 miles while the Me 109 could not go much beyond 400. Since range became a crucial factor during the Battle of Britain, Udet's rejection of the Heinkel fighter was a major blunder.

During the months following its rejection, the fighter embarrassed and irritated Udet by establishing new speed records. Finally Udet went to Heinkel and said "For God's sake, Heinkel, the Me 109 is and will be our standard fighter. It just won't look good if another fighter proves faster"! Udet instructed Heinkel to stick to building bombers and leave fighter development to others. He 100 Fighters would have won the Battle of Britain, but Udet valued his pride above better weapons.

After the fall of France, Udet told his colleagues: "The war is over! To hell with all our aircraft projects - they'll no longer be needed"! Immediately thereafter, everything he touched was cursed. He was ridiculed for his unsuccessful attempts to pioneer night fighter interception techniques. His Stukas were so badly butchered during the Battle of Britain that they had to be withdrawn; Goering began spiriting away Udet's few loyal staff members and intrigued against him until he succumbed to nervous exhaustion.

When the Mk 108 thirty millimeter cannon was demonstrated for him in 1941, he rejected it saying "We don't need any aircraft weapons of greater caliber than 20 mm. Our pilots are crack-shots and can destroy the heaviest bombers with 20mm cannon at a distance of 65 feet." His decision appears contradictory since the production of the Mk 103 which fired the same caliber shell, was authorized. The Mk 103 weighed 319 pounds while the Mk 108 weighed only 127 pounds. The Mk 103 fired 420 rounds per minute while the Mk 108 fired 650 rounds per minute. Only 4 hits from a 30mm cannon shell were needed to down a B-17.

Udet's ELK plan was designed to eliminate aircraft from production, which failed under operational circumstances while expanding the output of the few carefully selected models. The plan flopped because Udet selected planes for production which were failures. The development of the Do 217 and He 177 heavy bombers was greatly delayed because they were required to *DIVE-BOMB*. At that time, the technology for making 20 tons of bomber as nimble as a fighter did not exist. This requirement caused innumerable delays and both programs fell far behind schedule. He also ordered the Me 210 into production as a replacement for the aging Me 110, but the new plane was so defective that it had to be junked. In point of fact, a suitable replacement for the Me 110 was never developed and it soldiered right up to the end of the war as a night fighter.

In September 1941, Hitler berated Goering for Luftwaffe failures. Goering, in the presence of State Secretary Mitch, called Udet to his headquarters and passed on all the complaints, with liberal embellishments. As Goering finished his tirade, he made it perfectly clear that every disappointment Germany had since 1936 was all Udet's fault. The He 177 bombers caught fire too easily, they were behind scheduled production, the Me 210 program was a failure, the Battle of Britain had been lost, and his Stukas could only be used against the Russians. Udet realized too late that Goering had tied his hands with red tape and was using him as a scapegoat.

Udet solved his dilemma by blowing out his brains with a Colt revolver on November 17th, 1941. Goebbels pounced on the event to launch a propaganda campaign which convinced Germany that the heroic Udet died while testing out a new "SECRET WEAPON." Udet was replaced by the loyal and hard working party member, Hans Jeschonnek. Unfortunately for Jeschonnek, he became Goering's next scape goat. His hard work to correct the errors he encountered was nullified by the incompetent Goering and he too committed suicide when he realized his situation.

### REICHMARSHALL HERMAN GOERING

Herman Goering was an ambitious, flamboyant egocentric whose arrogance was exceeded only by his technical ignorance and propensity for bad decisions. He was such a liability that one wonders how he could become the commander of anything.

Goering emerged from WWI as the heroic leader of the Richthofen Geschwader with 22 victories to his credit. During the chaotic years of unrest which followed, he succumbed to the brilliance of Hitler's oratory and became his disciple.

Hitler needed the highly decorated hero to give tone and class to his bid for German leadership. Goering was given

command of Hitler's brown shirted Sturmabteilung force. As their leader, he turned them from an undisciplined mob of ragged agitators into an effective army of ruthless assassins and mobsters.

When Hitler took over in 1933, Goering was given the Luftwaffe and ordered to make it the world's most powerful air force. Goering believed the job would take 10 years and planned accordingly. Four years before the master plan could be completed, Hitler plunged Germany into WWII.

Initial Luftwaffe successes against poorly trained or equipped and heavily outnumbered enemy forces caused Goering and his staff to conclude that they could relegate aircraft development and production to a very low priority. This, coupled with his continued interference on the pretext that he was "interpreting the wishes of the Fuhrer," did irreparable damage to aircraft programs. His technical ignorance caused him to cancel many promising projects, some of which had been started by his insistence in the first place.

To illustrate this point, you may find it interesting to know that by diligently searching all radio frequencies, the Germans learned that British fighters were remotely controlled on VHF frequencies from ground stations. They realized that the ground stations were obtaining their information from a new radio location system which was somehow connected to the mysterious antennas along the English coastline.

General Wolfgang Martini, Chief of Luftwaffe communications, has assumed that Germany was ahead of the British in this field because of their own Freya and Wurzburg systems. Freya was successfully being used to spot ships moving in the English Channel and Wurzburg was directing flak batteries defending the Ruhr.

Martini discovered that the entire length of the east and south coasts were covered by radar stations which were giving the British advanced warning of every raid. On August 15<sup>th</sup>, two days after the Germans had openly committed themselves to destroying the RAF, Goering drove another nail into the Nazi Coffin with the following directive, "It is doubtful whether there is any point in continuing the attacks on radar sites, in view of the fact that not one of those attacked has so far been put out of action."

His shortsightedness was directly responsible for Luftwaffe losses suffered during the ensuing battle. However, Goering's standard solution for unsatisfactory situations was to blame others. When the Battle of Britain was not won in the 3 days he predicted, Goering made a personal tour of each unit involved, to tell the men what a pack of cowards they were. When General Major Osterkamp, commander of Luftflotte 2, wrote the Inspector General that his pilots were being pointlessly sacrificed by Goering's restrictions, he was busted to Major, and told that any further revelations would result in his Court Martial.

In the spring of 1942, the German high frequency expert, Roosenstein, learned how to jam radar with "DUPPEL." This seemed to be an effective means by which German bombers could avoid detection during their nightly forays over Britain. When Goering heard about it, he suspended further experimentation because he feared the British might learn of it. General Martini was ordered to hide the files in his safe and

mention of the word "DUPPEL" became a court martial offense. Goering's directive left the Germans without an effective countermeasure when the British used something similar to Duppel to jam German radar during the battle of the Ruhr.

Goering promised Hitler that the beleaguered von Paulis and his 6th Army holding Stalingrad could be completely supplied by air. They needed a minimum of 300 tons per day to survive but the Luftwaffe averaged only 100. This debacle could have been averted if, on April 29th, 1937, Goering had not cancelled all further development of four engine bombers.

With four engine bombers, the Germans might have smashed the industrial complexes which armed the Russians who trapped von Paulis in the first place. The heavies could have been pressed into service as supply transports whether the factories were destroyed or not. But the real measure of Goering's ineptitude is not gauged by his lack of equipment, but rather his ignorance of its limitations. His failure to grasp the potential of the forces he commanded cost the Germans dearly.

When Guerin had the British army pinned against the Dunkirk beaches and was ready to finish them off, Goering prevailed upon the Fuhrer to let the Luftwaffe end the matter. "My Luftwaffe can do it alone!" he bragged, in spite of the opposition his subordinates voiced over the preposterous commitment. And so, Goering single-handedly saved the British army.

The only creditable action Goering ever attempted was when he argued with Hitler against his decision to attack Russia. Since he was unable to change the Fuhrer's mind, his track record for failure remained unimpaired.

We don't have the space to recount each of Goering's mistakes in detail. So let us end the story by relating that Goering became more remote from his responsibilities as the situation deteriorated. He became addicted to drugs as the end drew near and, in retrospect; it appears that the rotund Reichmarshall helped the Allies more than the Luftwaffe.

#### Sources:

- ❖ GERMAN COMBAT PLANES, Wagner
  - ❖ WARPLANES OF THE THIRD REICH, Green
  - ❖ THE FOCKE-WULF 190, Nowarra
  - ❖ THE MESSERSCHMITT 109, Nowarra
  - ❖ LUFTWAFFE DIARY, Bekker
  - ❖ A HISTORY OF THE LUFTWAFFE, Killen
  - ❖ WARPLANES OF THE SECOND WORLD WAR,
  - ❖ AIRCRAFT IN PROFILE, Green
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One is hard-pressed to find published material on LUFTWAFFE. The game does not seem to have provoked the normal early flood of strategies and game-winning plans which have characterized previous Avalon Hill offerings in the months following publication and distribution to the game-playing public. What has been written consists largely of suggested revisions and optional rulings or historical commentaries and technical debates on the game's accuracy. Articles on playing LUFTWAFFE have been few and far between and only one or two have presented more than an intelligent reader could deduce from the suggestions in the instruction manual itself. Having had the pleasure of playtesting a prototype of the game several years ago (Spring of 1970 to be exact), I find this a pleasant opportunity to initiate what I hope will be some heightened interest in playing and writing about it.

Perhaps it is the sheer expanse of the game - it is certainly *not* a game you'd pull out Sunday afternoon in order to spend a few hours with friends (save a quick single-quarter mini-game in the Basic Game format). Barring its lengthiness, LUFTWAFFE is uniquely suited to a kind of comprehensive long-range planning not truly matched in any other Avalon Hill game, including the naval games which in some ways pretend toward the same end in a small way. LUFTWAFFE does not lend itself to the normal, typical gaming analysis so familiar with land wargames given the latter's relatively defined starting positions, limiting terrain features, and relatively predictable order-of-appearance data. LUFTWAFFE hardly has anything that one would define as "starting positions" save the Recovery Lines, certainly has no dependable order-of-appearance as regards placement of units and has "terrain" of the most limited value in actually establishing defenses and planning offensive thrusts from the point-of-view of *using* the terrain. I can think of exceptions on a very small scale to all of the above such as is suggested in the instruction manual which recommends winding up your move behind a city so the American can't get to you without risking AA fire (hence 11 using" the terrain). However, for the most part, LUFTWAFFE analysis does not have at its disposal most of the 'obvious' points of reference, and the success for either side rest quite firmly upon an ability for comprehensive long-range planning and an equal ability to respond to the unfolding of opposition planning.

D-DAY comes close to this sort of planning in the beginning since the freedom of selection of defense and offense for both sides is highly flexible and occupies lengthy discussion; STALINGRAD then came along with a further freedom of deployment and the naval games, by their very nature, brought even more initial unpredictability. LUFTWAFFE brings this all to a new height of well-calculated strategy by not allowing either side a true knowledge of the opponent's beginning placements until after all positions are set. The committal of American forces each quarter to specific targets which may not be changed during the course of the quarter is an element of play totally unprecedented in Avalon Hill gaming - the preplanning in 1914 was not irrevocable in the way American bomber missions are in *LUFTWAFFE*. The timing of the release of these missions is quite free to compensate for the committal to targets and the German player has no idea of either the targets or the timing, making his job

tougher than in most previous games in which the objective was and has been very clear. Though there is a *How To Win* statement for each version of LUFTWAFFE there is no set order for achieving this end be it a need to eliminate any 10 cities or every city during the course of a full 10 quarters of play.

Perhaps I overemphasize the situation and the strategic possibilities of the game - I do not think so. I am willing to admit that the nature of the game demands that it be played on a campaign level after a while since the Basic Game or a mere one quarter version of Tournament/ Advanced play soon fails to keep up playing interest. And for this reason, the game becomes a lengthy battle, involving a complex records keeping system. The game does not seem to me to be 'old' enough yet to submit it to too detailed an analysis of move-by-move positions and tactics. LUFTWAFFE's many variables within just a few well-defined rules for movement and combat leave analysis of it in much the same shape as I imagine early Chess analysis found itself: no real standards yet developed out of play with apparently every possibility a good one. Any "do this oil the firs, move" philosophy seems to me to have to stand the test of time in play, and I am certainly unable, even after a few months of analysis, to lay down coordinates for placement of units and "sure" targets for bombing runs. I do feel that a "think about this before the first move" philosophy is possible and it is just this that I have attempted to compile over the past few months for presentation here.

I feel that the most important consideration is whether or not to play with the freedom of individual counters rather than mass typing of similar units. Personally, the game seems to me to demand that this step be taken as soon as you have a grip on the Basic Game and the fundamental rules of movement and combat. If this method of play is delayed, the game bogs down and both Tournament and Advanced versions must suffer - if indeed they are truly playable at all as I could not play them with any enjoyment or realism without freeing all units from the demand to act as one according to type. However, the forbidding nature of the paperwork involved must surely dampen the spirits of anyone attempting such an individual accounting of units. LUFTWAFFE seems to me to be intended to last several sessions over several weeks of play once the basics are grasped - this is the true campaign spirit in operation as a key element of the game rather than a mere outcome of the need to postpone play until more time is available or the next PBM sheets arrive, But keeping track of the turns each unit must refuel or pass the Recovery Line is not conveniently or very visually handled using paper and pencil (or even grease pen and plastic sheets). Diagram A suggests a pegboard arrangement which very visually indicates when each unit must land to refuel or pass back across the Recovery Lines from a bombing mission. The initial outlay of materials and time to prepare such boards is, I believe, more than made up for by the ease with which records are then kept - and using a peg specially marked for each unit is as bad as having to hunt for counters, thus the use of rows for each unit and random selection of any peg to mark the turn for landing/recovery. Suggestions accompanying the instructions indicate that the essence of the game is to get to this stage of individual

accounting as soon as possible. I find this pegboard arrangement a most useful method for anyone seriously interested in testing out LUFTWAFFE's potential for effective campaign planning and reaction to opposing planning. Many tactical and strategic concepts are truly foolish if they must be tied to operating all planes by type, so my analysis will presuppose counters being free to operate on their own even if specific reference is not made to this rule during the rest of this article.

### THE IMPORTANT STRATEGIC CONSIDERATIONS

One of the subtlest of assumptions made in the design of LUFTWAFFE concerns the accuracy of American bombers: they are assumed to be 100% effective in destroying a target if they survive anti-aircraft fire (which can, at most, eliminate one factor). Thus getting through to any target with two factors insures its elimination. Indeed, it is not too grave a risk to suppose that one lone factor could eliminate a target since getting through is really all that is required. For some, this may not be very realistic in a very fundamental sense since anti-aircraft fire, even if not successful in destroying bombers, could unfavorably affect the accuracy of the mission, requiring several strikes for true elimination. However, this would probably only further the extreme complications involved in keeping records and while I have seen other games on the same topic use partial elimination of targets, they were based on single raids of one day duration in which no real need existed to keep track of turns for landing, etc. As it stands LUFTWAFFE does offer a fairly simple objective to the American due to the simple need to "get through." Returning becomes something of another issue.

The rules specify that there is a penalty for failure to land to refuel or pass the Recovery Line by the deadline for a given unit. There is NO direct penalty for loss through combat. Thus the implication strategically (barring the need to save on units from quarter to quarter) is that it might be better in the long run to risk elimination through combat to get to a target than to fail to attempt the target or fail to get back once you make the target. That is, don't be afraid to go into the dragon's mouth because elimination of his cities or bombers is what the game is all about! Thus it may be quite sound to send a few bombers at a target with less than complete fighter protection if the target is truly necessary - the same might be true for the German defensive posture since one obviously does NOT go after returning bombers in the Basic Game but will want to go after them in Tournament or Advanced play in order to reduce the effective quarter-to-quarter strength of the American forces.

Another important assumption made in the rules which definitely colors the composition of fighter groups is the "best vs best" requirements in all fighter combat. It is quite easy to use a superior unit (or a couple such units) to "shield" less effective fighters rather than concentrating the best units in groups, leaving weaker fighter types to fend for themselves. This fact is one of the major suggestions in the game itself but what does it mean is that the individual accounting of units will have to be employed if such a ruling is to have desirability as a tactical element.

Otherwise you'd be forced to ignore such integration of weak and strong units or limited use of such a tactic since the use of few strong units with weaker ones would restrict other similar strong units from flying at other times while those which had flown were refueling. This sort of mass typing provides a very handy method for use by your opponent to "time" your ability to use units (providing a sort of fluid but definite order-of-appearance time table). The ruling resolves much possible argument over what units fight what units when unmatched types meet but it does seem to me to require accepting the burden of record s-keeping in a big way.

The Aerial Combat Table has provided the source of one article specifically dealing with the analysis and play of the game (LUFTWAFFE - A BATTLE OF WITS by Dennis Milbert). I don't intend to repeat the whole basis for this Sept-Oct '71 article, but Dennis indicates, that there is a maximized point of elimination of enemy factors for each type of unit above which there is no real increase in the amount of destruction a single factor can produce (though more factors will, naturally, result in more enemy losses in total). While the article is quite good and Dennis presents statistics with which I have no real quarrel, there are other considerations which might color the decisions being made by a given player: the gap between "poor," "average" and "good" luck with the die. Diagram B illustrates Dennis Milbert's article visually rather than simply through figures: there is a leveling off of the number of factors each attacking factor can be expected to eliminate which occurs approximately at 7 attacking factors. This is accurate for the average but note that with "Best Luck" the leveling off begins at a higher level (roughly 11 factors) and at "Worst Luck" there is a very hazy stability achieved. But the significant fact which this graph illustrates is that there is a significant gap between the levels of Luck: well over a full factor's difference when the leveling off begins and almost a full factor between adjacent levels. Certainly the "average" overall equates very closely to the average luck levels, but it seems to me to be instructive to note that the overall average is derived from averaging widely separated levels of chance.

Perhaps Diagram C will illustrate the kind of gap present as you climb the scale in numbers of attacking factors since it illustrates the severely widening gap between best and worst luck in terms of the actual number of enemy factors you can expect to eliminate at each level of attacking factors - Diagram B, remember, is the number of factors each attacking factor can be expected to eliminate while Diagram C is the total number eliminated by summing up all enemy units eliminated by a given roll at a given total of attacking units. Again, the average luck equals the overall average but the gap between lowest and highest climbs very steadily from a couple factors to more than 20 (though the practical level is about 13-14). Again, over the course of a long game, YOU can count on averages to balance out, but specific encounters often can temper such averaging and statistical rationing of forces as Dennis suggests. The phrase "on the average" is the catch - we have all rolled several consecutive low or high numbers many times in play and they do average out, but a few good rolls at key points of any game can make averages irrelevant because the game may not last long enough for averages to average out!

Overall, I would agree with Dennis in his assertion that the use of the combat table analysis he gives you some point of reference in an otherwise lengthy table. His concept of attrition is also useful but must be tempered by the fact that you are moving between these attrition attempts. His statement that is "quite hard to reduce" a stack of 24 bomber factors given a decent fighter coverage seems to me to be more important than counting up turns and factors to try to reduce such a stack because it might take three or four turns to do so, and by that time, the bombers could very easily be at their targets. (Note, too, that there is nothing preventing enemy fighters from attacking bombers in the turn they are over a city since there is no provision for anti-aircraft accidentally knocking their own units out of the air.) The point is that an air-combat situation is hardly automatic" though planning can be a lot easier for the whole game using the Optimum Combat Level and Kill Rate figures which Dennis gives for each type of Unit. Dennis admits to having "statistical deviations" as a part of the luck - I think the two previous diagrams illustrate that these "deviations" can be pretty significant and create unpleasant setbacks. It becomes increasingly clear that it is important to concentrate your forces whenever and wherever possible so that you come out of combat ahead. Couple this with the "most direct route" requirements, however, and we come to an even more extensive strategic/tactical issue.

The problem of how to concentrate force yet use the most direct route, and still not give away bomber missions too soon is perhaps the essence the American planning. The solution to this involves two decisions: whether to hit densely occupied areas or not and in either case, where to disperse from concentrated formations so as to preserve the protection of a large group for as long as possible. Fortunately, the rules do NOT require that you start from the point behind a given Recovery Line which insures the shortest route to a target. The rules do indicate that from starting square to target hex you do not spend more turns in the process than necessary and I do not interpret this to mean that you can be forced to start at a specific spot by the final target - this often gives the American player a better choice of a spot from which he may disperse from mass formation to specific targets. Diagram D indicates particularly good central hexes toward which large groups of bombers may aim and from there break-off to specific targets thus not giving away exact locations. The selection of these "jumping-off" points has been made only as an example of the concept and not as any attempt to provide some sort of complete list such points. The numbered hexes are the points from which the various aircraft factories thin the circles can be hit within the next turn. The numbers in the hex refer to the number of ns it takes to reach the particular dispersion point.

Obviously, the opportunities for such uncommitted positioning are greater where the concentration of targets is correspondingly greater. It is for this precise reason that while there is better protection, i.e., more bases nearby for possible fighter locations, there is a far better chance of catching enemy forces off guard. The problem of dealing with such protection is part of another strategic ploy I will mention later; however, for the moment it is sufficient to note that there are substantial numbers of targets in less densely protected areas (about 10

along the Italian Front alone). German fighter protection will have to expend some time in these areas, spreading them thinner than the wealth of bases near Central Germany and the Netherlands Border otherwise suggests. Of course, when the objective is the entire reduction of cities under German control, the targets open up drastically. In either event, it is a good idea to stagger attacks on more than one front and attempt to get the German player to run back and forth, parrying thrusts into widely separated areas at time intervals which maximize the time it takes to get from one side of the board to another. This is the essence of the American plans since he is limited by time and by route: he has no chance to refuel and must follow a light course once he starts out. However, this does not mean that fairly lengthy missions are out of the question since it is possible to begin on one front and travel with a very large group of bombers which drop off along the way, ending up near an opposite front. The use of this with shuttle raids begins to give the American extended flexibility in his missions since missions, in play without shuttle missions, consist of returns to the same Recovery Line from which the mission began. Otherwise, too many missions will span too lengthy a distance - this front-to-front mission technique is merely a variation to be employed to put German defenses off-balance since the apparent strength at one front becomes offset by the actual targets at another.

Sneak raids fulfill yet another American option, which being the tying down of German defenses by the use of a threat. In fact, as with all military threats, the shuttle raid is probably more valuable before it is launched than it is once begun, as it is not subject to analysis until this time. German defenses can only guess at the real strength of the raid - if indeed there is one in actuality. The situation is similar to the entry of the American forces in BULGE or the second Allied invasion in D-DAY: the effect is heightened by delaying them past the expected arrival time. In LUFTWAFFE, the arrival time is totally unknown leaving the German player with a problem which, while it is not totally a surprise due to the requirements for announcement within two turns of a file raid, does not give the German player as sound a timetable as in the land games. As with other elements of each quarter of play, the Sneak (and Shuttle) raids become a more valuable tool when used during longer games since they may be varied in strength and timing each quarter. In fact, the key to success in the Tournament and Advanced games seems to me to lie very much in the variations upon a sound strategy which both players can develop since it is as much the German's ability to confuse American plans by variation of the defenses which the latter must expect to face.

As mentioned earlier, the concentration of German bases on the Western Front seems formidable. Indeed, it could be if the American refuses to exercise the important option to attack these bases, thereby depriving the German of the use of these bases and cutting off possible refueling spots and staging areas. The important fact is that the German is lured into the area and then the bases are eliminated, suggesting an attack on aircraft factories, and pulling fighter support from an intended area of real attack. The fortunate element in all this is that the "most direct route" is not followed in these attacks. Thus it is possible to bypass such targets in an apparent thrust at deeper

factories or bases and then turn back upon the bypassed bases or make right angle moves from missions beaded in other directions to cut-off support from defending fighters. The possibilities are fairly extensive but the point is that such attacks are quite effective and amount to harassment of German resources in a manner perhaps even more devastating than expected.

Diagram E reveals something fairly surprising: there are very few bases actually near the central German targets of the Oschersleben area! There are large numbers of bases surrounding this area but few really in the area in comparison to the concentrations along the Western and Northern/Southern approaches; an attack coming, from the Italian Front requires a long flight which will allow German fighters to shift their positions from the more concentrated areas. However, a sacrifice mission aimed in this direction with the express purpose of drawing fighters from the West may give all American player a vast opportunity to destroy MANY bases, laying open the Western Front to later attack against aircraft factories. This merely illustrates the variety of strategic possibilities the American has in a seemingly limited game of getting to a target and eliminating it. Though the Basic Game is little else but a good practice for the more advanced versions, it does provide opportunities to try out a variety of ideas in many games.

## GERMAN RESPONSES

I have spent a good deal of space emphasizing American chances to the extent that some may think there is no real play going for the German save to hang in there as best he can. However, the German player does have the best of it as the victory conditions are expanded - saving ONE city does not seem to be too hard though it becomes harder when one enters the tile game thinking that ONE city is no difficult task simply because that becomes the goal and many sacrifices are allowed to pass thinking that there is lots of time left. In fact, the fact that the responsibility for action lies with the American is one of the greater problems for the Germans he can he call permit himself to sit back in some instances. This attitude is, of course, damaging since the German defensive chances have many variables which will serve to confuse American efforts just as effectively as the many American ploys. For example, the simple decision to hit American Missions early or at a more delayed moment (or, in more advanced play, even after targets have been hit in an effort to deprive the American units for later quarters) will begin to throw the American's rhythm off significantly and make it harder for him to plan just when to break from formation to go to specific targets or assault airbases.

Diagram F indicates the limits that bombers can reach after a set number of turns no matter where they leave from. It is perhaps as enlightening as Diagram E in what it reveals since it shows how far away various targets are in terms of air time from each major front. Note that the Italian Front offers the American no real targets until he has gone at least 4 turns in the air and at that he has but 2 bases! Most Italian targets lie within the five turn band. The Western Front is hardly more promising since it offers but 2 targets within 3 turns and adds

but five more on the next. Percentage wise, the bands break down as in Diagram G; note that most airbases are just the opposite, appearing (along the Western Front) ill the early turn bands rather than near the greatest number of targets. But it is the Baltic Front where many targets lie open to the American hence a strong sneak raid can be devastating, The figures after each front's identification on Diagram G indicate how many targets there are TOTALLY within 6 turns of each front.

Note that the Baltic Front is THE most lucrative in terms of pure number of targets accessible to American attacks and it has relatively few bases near the beginning hexes. 01' course the total for the Baltic Front includes many targets also in the Western Front where there are more bases for defense; but a larger number of targets are present early in the movement on this front than for any other front. Limiting the number of turns to 3 and riot 6 makes this apparent since the Italian Front has NO TARGETS within this distance and the Western Front has but 2. But the Baltic Front has a full 17 targets within the first three turns of movement!! Expanding to four turns gives the Western Front up to 7 targets with 2 for the Italian Front while the Baltic Front expands to 26! Thus there is sufficient hidden threat in the Baltic Front to warrant careful consideration of defense in this area. In fact, the major target areas are inaccessible to the Western Front (and very distant from any Italian attack) before the fifth and sixth turns -- yet they are within 3, or at most 4 turns of the Baltic Front. Fortunately for the German defense, only one raid per quarter may be launched (but bombers may move in any direction from their jumping-off point).

It would seem to be the best German course in the Basic Game to make EVERY effort to reach the bombers and stop them as soon as possible. In more advanced play, tearing away at fighter support will have its effect in later quarters of play even if it does leave some successful American missions early in play. The ONE city rule cannot become a crutch for weak movement but is a comfort in trying to wear away American fighter forces when this may allow bombers to get through. During this time, protect the bases so that you are not alternately cut short by a clever American who seeks to stop your fighter force early.

The introduction of jets and school units does NOT alter any major elements of planning; however, alteration of the concepts implied by figuring the number of targets within a certain turn radius is very drastically changed in Advanced play since all cities are targets and these are very heavily concentrated in the Western Front. But the objectives and methods are still the same no matter what version of the game you play; I merely encourage the longer versions because of the variety they allow in using many individual plans from quarter to quarter.

Fundamentally, I would have to give the edge in a longer game to the German since intelligent play will make it hard for him to not manage one city left by the end of play. However, it is by no means as cut-and-dried an affair as many shorter articles have suggested. I do not feel that the German player cannot hope to do anything but win as one writer has suggested! Perhaps the Basic Game, again, is fairly easily predicted given average luck with die rolls and average play (at

least matched play on both sides). As I have stated, no other Avalon Hill game offers the kind of play LUFTWAFPE presents - perhaps a limited number of people appreciate this offering. I am hoping that the number of people in this category increase if only because it will mean further attempts to reproduce a truly "campaign" game which is more than a loose conglomeration of ideal plots which characterized many amateur inventions in this direction many years ago.