

DESIGN ANALYSIS



CRETE Design Problems and Solutions

By Vance von Borries

At 7:30 on the morning of 20 May 1941 the skies over Crete filled with a growing armada of German aircraft. The Luftwaffe had arrived to bomb and blast every Allied soldier, gun, and trench that could be found. The air raid looked like any other but somehow it felt different. By 8:00 the difference became visible. Out of the dust came the German gliders, descending quickly to their targets.

The cry of "Glanders" had hardly passed down the line when the skies erupted with a colorful display of little puffs with men dangling below: parachutists!

"Wildly waving their legs, some already firing their Schmeissers, the parachutists came down, in the terraced vineyards, crashing through the peaceful olive boughs, in the yards of houses, on roofs, in the open fields where they found earth. Others, ridding themselves of their harness, crept cautiously in search of comrades, only to meet enemies. But where they landed out of range, there was the chance to collect more weapons and ammunition from the canisters, to organize in their sections, to attack. The day had indeed begun." (N.Z.O.H., p.89)

Anyone who watches the movies or the 6 o'clock news might think things were different. After all, don't paratroops scatter the hapless defenders by making a swift attack at the crucial point? Perhaps we have all been led to believe in a certain mystique about the paratrooper as nurtured by Hollywood or Walter Cronkite. But Hollywood and Cronkite to the contrary, the paratrooper is not always a superman. The paratrooper is most vulnerable during his first minutes on the ground, assuming he even makes it to the ground.

STRATEGIC ANALYSIS

It is perhaps this vulnerability of descent and the danger of disorganization that makes parachute operations difficult to simulate in a wargame. While at some point in the design of the game the elitist legend of the paratroops must be dealt with since man-to-man operations are implicit, the design must start with the strategic situation, which is known in game terms as the scope of simulation. While *CRETE* and *MALTA* are games, they also are simulations of an aspect of history. The scope of the games involves two dimensions: the limit of simulation and the historical parameters. Clearly, the historical subjects are the parachute assault against Crete and the proposed battle for Malta. The design must take care to distinguish the forces within a player's control from the forces shaping the game. In a tactical battle game such as *CRETE* and *MALTA*, the player should be in control of only his immediate military situation, not of the surrounding political events or military forces lying outside his normal operational span of control. This means there should be nothing the player can do to change the nature of the battlefield situation.

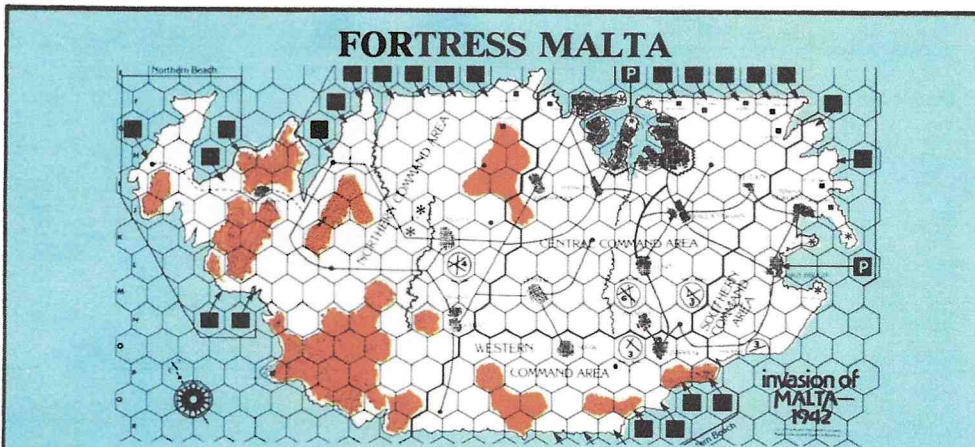
As an example, consider the strategic setting for *CRETE* which imposed several constraints on the Germans. First was the Germans' primary strategic consideration: they had to win the battle as quickly as possible because the bulk of their airforce was needed in the impending Russian Campaign. Second, thanks to the unfounded assumption that Cretans were pro-Axis, the Germans thought they

could conduct a quick battle and bag thousands of British prisoners. Third, Gen. Student, the German paratroop commander, received such pressure from interservice rivalry he felt he had to pull off an impressive victory. As the clincher, the Germans were unaware that the Allies had broken the Enigma Code and had an almost perfect knowledge of the German order of battle and attack plan. The primary Allied constraint was Churchill's insistence upon holding Crete as a naval base. Although the Allied command would fight, it was willing to evacuate the moment things got tough.

When considering the above historical constraints and keeping in mind that the constraints guide the design of the game, the solutions to several design problems were revealed. The first solution involved a problem discovered in the early playtesting: the Germans had too many possible attack plans. While this early version allowed the German player nearly complete planning freedom it gave the game a very slow start due to the highly involved planning of the attack wave for each sector, the reinforcements, and even air-droppable supplies. A solution had to be found to speed up the start of play.

Historically, Crete could have been invaded according to almost any attack plan. The whole 7th Flieger Division could have attacked just one airfield, destroyed its garrison, and then have struck out overland with reinforcements to destroy the Allied coastal garrisons one by one. With their overwhelming air superiority, the German army could not have lost, but this would hardly make an enjoyable game. And, allowing the German such an option would ignore several situational constraints: the Germans were forced by the strategic situation and the proddings of interservice rivalry to attempt a speedy conquest, not to mention they had no idea of the true Allied strength.

The only game solution was to place greater limitations on the German player: he must be obliged to follow the historical attack plan. Any Allied player who plays the game more than once will know that plan, reflecting the historical fact that the Allies did know German intentions. Thus it is reasonable to oblige the German player to abide by the historical invasion plan, shown on the Assault Organization Card. In addition, the paratroop units are obliged to drop within four hexes of an airfield, reflecting historical supply limitations, the Allied knowledge of the plans, and the German underestimation of Allied strength and belief in a quick victory. Also, as a practical matter in a game without parachute drop restrictions, no matter how encompassing the Allied defense perimeter, the Germans could always land outside, organize with impunity, and attack with maximum organization and co-ordination. This rule, combined with rules for inverted counters and decoy positions, makes it still possible for a German player to miscalculate the Allied player's strength around each airfield.



Malta is covered with fortifications. Ever since the British occupied the island in the Napoleonic Era the island was considered a naval fortress. During the mid 19th century many coastal fortifications were built and batteries installed. Remnants of these were pressed into use during WWII. One prominent system of fortifications was known as the Victoria Lines. It consisted of numerous weapons pits and small forts, and incorporated a natural defense line running from the Madalena Battery through forts Musts and Tarja to Binjemma Battery. During the 19th century an enemy could occupy the island outside this line, yet Malta could still operate effectively as a naval base. However, by 1940 the range of field howitzers was so great that, at best, the fortifications would serve as the last line of trenches. Given the dimensions of the island, the British had to move their defense seaward and into the skies. Once enemy troops had arrived on Malta, had artillery in action, and had secured supplies then Malta would cease to be a base and essentially would have been captured. The critical factor in the strategic defense of Malta was command of the air. When this was lost, the Royal Navy could not remain. So a study of the struggle for Malta is a study of the air war above.

The air war over Malta underwent several phases. There was the first Blitz by the Italians during 1940 when the British had only three scratch-built Gladiator fighters. After the Italian attack died down the German Luftwaffe arrived in January, 1941. On the day of their arrival they inflicted severe damage to the British carrier *ILLUSTRIOUS*. British naval power then departed the central Mediterranean and the Axis commanded the skies until the invasion of Crete and the Russian campaign called away the Luftwaffe. The Allied command always desired to maintain Malta's use as a base and during the second half of 1941 Malta became a stopover point for aircraft flown to Egypt. Malta then had sufficient aircraft to go on the offensive by attacking Axis supply convoys to Africa. This offensive was so effective that in December the Luftwaffe began returning from Russia. As the pressure grew during the next three months the British were forced to send the first Spitfires to the Mediterranean. On 20 March, 1942 the Axis felt strong enough to begin the Grand Assault, the air Blitz to neutralize Malta. By mid-April the Spitfire reinforcements had been reduced through daily air action to six. In this grim situation the Axis had achieved their greatest control of the air. When on 20 April forty-six Spitfires were flown to Malta from the U.S. carrier *WASP*, the Axis superiority was such that all were shot down or destroyed on the ground within three days. It was this success and the continued Allied weakness that prompted the Axis command to report the complete destruction of Malta's air defense. Presumably the next major step would be the actual landing on

Malta. But the very same day this report was made (10 May) another sixty-one Spitfires were flown from the *WASP* (and 17 more on 18 May). In one day the picture had changed: Malta was combat ready again.

The Axis could not invade without air superiority, but even if the Axis could have gained a lasting command of the air, they faced several other problems. The spearhead of any attack on Malta would consist of the paratroopers. While they could be dropped anywhere on the island, they would need heavy weapons support to break the fortifications. Barring quick capture of an airfield the weapons would have to come across easily defensible beaches dominated by hills, forts, and steep cliffs. The north and east approaches to the island were covered by minefields and considerable coast artillery. For the sake of the game it must be assumed that Italian minesweepers would have been successful in clearing the way to St. Paul's Bay Beach and Valletta Beach. Once the invader is ashore and has survived the counterattack, he is faced with the necessity of quickly seizing a supply port because the beaches were too narrow to bear heavy supply traffic. In sum, invasion would depend upon the success of the airborne battalions in capturing the few key points necessary to enable the main invasion force to land successfully.

Fortress Malta was tough but it faced many problems too. First, in consideration of the civil population, Lord Gort (in command from 7 May 1942) would have to consider capitulation when food and water supplies ran low as Percival did earlier at Singapore (15 Feb 1942). The equivalent of four reinforced brigades defended the island, but during the spring and summer of 1942 they had become weary, were hungry and malnourished, lost their infantry training edge, and even were split up to provide labor details to remove bomb damage. In some photographs even the uniforms were in tatters. Another problem was that at times the AA guns fell silent as sufficient stocks had to be available in event of an invasion. Malta was also besieged psychologically. Every soldier and civilian watched the convoys and after 22 months of this behavior a debilitating siege mentality had taken hold. Many were anxious for the Axis to invade just to get the agony over with. On the other hand, the siege united the Maltese people with the result that there were no saboteurs or collaborators.

An interesting aside to the fortification problem is that the island is honeycombed with caves. Some of the cave systems were so extensive that one writer called the tunnel from Valletta to Rabat "a highway". Although most cave systems were unknown even to the Maltese, and military use would have been limited to partisan action, the island headquarters at Valletta, most granaries and water reserves, and by 1942, workshops and some aircraft hangars all were underground.

GAME SCALE

The strategic setting constraints also had an effect on the size of the mapboard and the level of conflict. Since the subject matter is the invasion of an island it was necessary to represent all of the important battle areas in one continuous map surface. *CRETE* employs a scale of 1.6km per hex. A scale of 1.2km would have been preferable, for more exacting tactical detail, but the 1.6 km scale was the largest possible given the dimensions of the gameboard sections. The long odd gameboard arrangement is regrettable but unavoidable given the nature of Cretan geography. The *MALTA* game uses the recommended 1.2 km per hex scale, and the entire island fit onto one gameboard section.

Closely related to the hex size problem was the unit size problem. Decisions on both problems were made simultaneously because the size of the unit is a function of the amount of terrain represented in one hex. A battalion level of representation was chosen because, at this level, players could easily see and control the action of an entire battle. The alternatives: brigade level or company level would reduce variability of play or lose sight of the course of the overall battle. The rule allowing the German player to substitute companies for his paratroop battalions reflects the necessity of simulating paratroop drift and the German practice of assigning missions to individual companies. Research indicated that two battalions would fit well into 1.2 km per hex. At 1.6 km, however, the question arose whether three battalions should be stacked. So, other factors had to be considered such as command control, unit density, total units in the game, and the historical record. The most practical approach was to keep the game at battalion level, with two battalions per hex thus maintaining consistency with *MALTA*'s scale. Related to the unit size problem was the decision to stick with full units in the combat system. An alternative to the full unit elimination found on the Combat Results Table would have been to reflect partial losses through step reduction. This would give the advantage of allowing many battalions a degree of staying power. But it also would have meant an unacceptable increase in set-up time. How could anyone ever sort out all those step reduction counters? Some people thought *ANZIO* was bad enough. When the step reduction system was tested, it did not work well, although combat resolution was perhaps more realistic.

Despite appearances, the CRT is not very bloody for a unit elimination table. Only in the worst circumstances in real battle would a unit be completely destroyed within a few hours. Most game action is at 1-1, 2-1, or 3-1 odds where, with a two thirds chance of no one getting hurt, unless surrounded, units usually must be attacked several times before being eliminated. A unique feature in this game is the new exchange system which is found at the low odds. It allows the attacker to adjust the level of intensity of a battle to where he can sacrifice extra casualties to gain a position. In sum, the CRT provides a clean resolution that fits the game scale and maintains the player's focus on the more important problem posed by the game.

TIME SCALING

A scaling decision all its own is the time frame in which to situate the game. *MALTA* presents no problems—the game lasts until one side collapses, or mutual exhaustion. *CRETE* is more complicated. *CRETE* was designed to center around the decisive struggle for the airfields, without which the German player could not adequately supply and reinforce his paratroopers. To stretch out the game to include Allied retreat strategies would distract from the central purpose, and would ignore political constraints, particularly Churchill's insistence that Crete should be a naval fortress, and that the island

should be held to inflict enough casualties on the German parachute corps to discourage possible future airborne attacks on Cyprus, Syria, or the Suez Canal. This restraint allows the Allied player a choice of only two strategies within the scope of the game: hold the island, or inflict heavy casualties on German paratroops before evacuating. Allowing a strategy emphasizing evacuation would defeat the purpose of the game. Only the first two strategy alternatives were codified in the Advanced Game Victory Conditions, and the game length was restricted to the moment Gen. Freyberg, the Allied commander, decided on final evacuation.

The final time scaling decision was to create four game turns in one game day. With unit elimination and battalion scale units, fewer turns per day would have been preferable but sufficient time had to be allowed for paratroops to land, organize, and attack all during the same day. Otherwise, more game turn phases with the required complexity would have been required.

PARATROOP DRIFT

The paratroop drift results do not represent another scaling decision but a German organization problem. The intention is to scatter paratroops all over the countryside, emphasizing the vulnerability of the paratrooper during his first moments on the ground as well as a normal scattering. There can be no "perfect plan" if only because of the random element of drift. Yet the drift result is not totally random. This too was intended. The actual landing location for each unit should be a function of the aircraft approach route, the prevailing winds, and anti-aircraft fire. Ground opposition will break up the aircraft formation and then the paratroops will be scattered and disorganized, but still according to the critical factors. The bias is important since at this scale total randomization is not correct.

NAVAL ACTION

A paratrooper's game should be concerned with only one subject, how best to accomplish his objective with the parachute forces at hand. Naval action was contained within another sphere of command for both sides. At Crete neither Gen. Student nor Gen. Freyberg had any control over the naval forces involved. The Germans attempted to send two invasion fleets to Crete but both were intercepted, probably due to the British advance knowledge through the Enigma Cypher, and were partially destroyed. An introduction of naval action to "save" the fleets or to intercept the British evacuation convoys would shift concern away from the primary tactical fight at the airfields. This is not the purpose of the game. Further, such a shift would raise the problem of a conflict of strategies: one of isolating the island versus one of seizing the island by airborne forces. In sum, to add to the naval action would hinder a playable situation. The *HMS YORK* and the coastal steamer are exceptions because of their limited tactical nature.

One naval activity which could have affected the outcome of the battle on land was naval bombardment. Historically the British Royal Navy did bombard Crete, but with disappointing results. The British conducted a night raid against Maleme with their faster ships, and later made a carrier-assisted raid against an Axis airfield on Scarpanto Island. Each raid lacked effectiveness due to lack of proper observation of target and lack of co-ordination with ground based activity. The Italians too planned a bombardment raid only this was to be against Malta. Malta's fixed coastal installations were to be bombarded by two old battleships which were not to fire more than 200 partial charge rounds. Observation was to depend upon spotter biplanes launched from the decks of the battleships. Like the British

plan this action lacked co-ordination with ground forces. Both the British action and the Italian planned action were omitted from the game because of their brief and insubstantial effect.

AIR OPERATIONS

Although the naval action is peripheral, air action is not. The critical prerequisite before any airborne invasion is the necessity for complete air superiority. Over Crete the Luftwaffe met only token British resistance until 19 May. On that day the last British aircraft (four Hurricanes and three Gladiators) were withdrawn to Egypt. The next day the German airborne invasion began. This, however, was more coincidence than plan. In its struggle for air superiority the Allied air strength had been eliminated in Greece. Still, some 45 aircraft evacuated to Crete (27 Blenheims, 12-14 Hurricanes, and 6 Gladiators) during 22-24 April but conditions there were so primitive that these could not be maintained in continual air combat. By 13 May the Blenheims had departed and the Hurricanes were reduced to six. On 17 May ten new Hurricanes arrived but these too could not last against the daily Blitz. Throughout the battle the British maintained the hope that the RAF might return. This intention prevented the Allied ground troops from destroying the airfields. That this hope was strong was proven by the actual arrival at Heraklion on 23 May of seven Hurricanes (of 12 sent). Still, these could not materially affect the outcome of the battle. They were too few. The British also tried bomber operations with Wellington and Blenheim bombers from Egypt. These bombed German airfields in Greece and later bombed Maleme airfield. Where the nightly efforts (13-19 May) before the invasion had little appreciable effect in preventing invasion the occasional later efforts had even less effect. There were just too few bombers available. The situation recalls the Norwegian campaign in 1940 where the RAF tried to cover Aandalsnes from the Orkneys. But perhaps the real cause for the RAF failure did not lie entirely with its lack of numbers. At this stage of the war in the Mediterranean, Crete was only one of over a half dozen operative fronts drawing RAF resources. Each new ground commitment required more aircraft and shortages soon developed. Chided for not giving promised support, the Middle East RAF

The Axis Invasion Fleets

The Axis invasion fleets consisted of a mixture of small coastal freighters and passenger ships, an odd steam yacht, some naval tugs, and a large number of caiques (auxiliary engine wooden fishing boats). This unwieldy assemblage was organized into two convoys and was to carry all the heavy equipment that was not transportable by air as well as some infantry for whom no aircraft space was available. The exact number of men and amount of equipment has proven impossible to determine, but it can be estimated that the first convoy of 25 vessels was bound for Maleme with about 2331 men. The second convoy with an estimated 4000 men in 38 vessels departed later and made for Heraklion.

A third convoy also sailed for Crete. It carried about 2685 men drawn mainly from the Italian "Regina" Division based on Rhodes. For this operation the Italians used an even more wretched collection of naval craft. Yet the Italian command, with no prior notification of the impending attack, was able to plan, load, and land this invasion fleet within six days of the decision to intervene. It is possible this fleet succeeded in passing from Rhodes to Crete because the British were too occupied with evacuations.

**AXIS AIR
ORDERS OF BATTLE**

Crete, May 20, 1941

4th Luftflotte (Gen. Lohr)

Fliegerkorps VIII (Gen. von Richthofen)

unit	type	approx # aircraft
I LG	1 Ju88	47
II LG	1 Ju88	47
II KG	26 He111	45
I KG	2 Do17	47
III KG	2 Do17	47
III KG	3 Do17	47
Stab/ StG	2 Ju87	8
I StG	2 Ju87	49
III StG	2 Ju87	49
I StG	3 Ju87	49
I ZG	26 Bf110	38
II ZG	26 Bf110	38
II ZG	76 Bf110	38
I LG	2 Bf109	38
Stab JG	77 Bf109	6
II JG	77 Bf109	38
III JG	77 Bf109	38
		668

plus some 50 recon. aircraft and some Italian combat aircraft based on Scarpanto.

Fliegerkorps XI (Lt. Gen. Student)

A total below of 493 Ju52/3m aircraft and 78 DFS gliders.

units
 KGr.z.b.V. 40 in reserve:
 KGr.z.b.V. 60 I KG z.b.V.172
 KGr.z.b.V.101 II KG z.b.V.172
 KGr.z.b.V.102 all gliders organized under:
 KGr.z.b.V.105 I LLG 1
 KGr.z.b.V.106
 I KG z.b.V. 1
 II KG z.b.V. 1 (2 staffelen)

Malta, May 10, 1942

2nd Luftflotte (F.M. Kesselring)

Fliegerkorps II (Gen. Lörzer)

unit	type	strength/serv.
Stab KG	54 Ju88A-4	3 3
I KG	54 Ju88A-4	23 13
KGr.	606 Ju88A-4	23 16
KGr.	806 Ju88A-4	28 10
III StG	3 Ju87D-1	23 10
8/ ZG	26 Bf110D-3	16 9
10/ ZG	26 Do17Z-10	8 6
I NJG	2 Ju88C-6	12 8
Stab JG	53 Bf109F-4	5 3
II JG	53 Bf109F-4	42 27
III JG	53 Bf109F-4	39 25
	plus 26(14) recon aircraft.	222 130

Fliegerkorps XI (Gen Student)

A total of about 500 aircraft, mainly Ju52/3m but including some He111, Ju86, and Ju87 used as glider tow-planes.

By summer gliders prepared amounted to some 300 DFS, 200 Go242, and 15 Me321. About 200 glider pilots had been trained.

Italian Royal Airforce

Based in Sicily, it possessed about:

200 Savoia 82 transports	150 bombers
140 fighters	10 air/sea rescue
160 ground attack	60 torpedo bombers

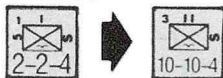
COUNTING FACTORS



THE UNITS—

In the game, the Germans may look like supermen compared to some Allied units, but there are some very strong reasons for the disparity as may be discovered by examining the cross-section of units displayed below. Each unit in the game underwent a similar analysis. The results, with slight modification, are found in the game box.

GERMAN UNITS—



Consisting of about 120 men this unit, typical of all parachute rifle companies, was well armed, had good modern equipment and the right equipment when organized; it was well led and performed well. Four of these plus a headquarters composed one battalion. The Sturm Regiment had been recently formed from the assault battalion that attacked Eben Emael. On paper this regiment was the elite of the elite and was to be carried in gliders.



While this unit was typical of the German paratroops, it was the first paratroop unit raised (in 1936). Commanded by Col. Bruno Brauer the 1st Regiment took part in the attack on Denmark and Norway and later saw action in Holland at Rotterdam. Contrary to the Sturm Regiment, the battalion headquarters in the regular battalions was not intended for assault.



Both units represented recently formed support formations for the air division. The anti-tank unit had air-droppable 28/20mm squeeze-bore guns whose only effectiveness against a Matilda tank was a chance track hit. The anti-aircraft unit was composed of air-droppable 20mm AA weapons.



Consisting of about 100 men, this unit was essentially a well equipped heavy weapons company. Since the rifle battalions had to paradrop without their heavy weapons, these units were attached to each assault group to restore weight to the attack.



Just a detachment, this unit represented four 75mm/LG 40 recoilless rifles. This weapon could be hauled by two men. It had a good rate of fire (6 rpm) and had an effective range of 5,600 yards. While quite effective in direct fire its use as a howitzer was wholly unsatisfactory.



The first unit was typical of the mountain units employed on Crete. Like the paratroops it too was short on heavy weapons but was a veteran unit, was well led, and had high morale. The recon unit was essentially a stripped down maneuver battalion.



The first unit consisted of twelve 75mm howitzers with range of 4,800 meters. It was effective against fortifications. Each piece required several transport planes to carry it, the gunners, ammo, and draft animals. Twelve 150mm howitzers with range of 12,325 meters composed the second unit. This artillery was much too heavy for air transport.



Both armor units had over a dozen tanks apiece, the first being composed of Pzkw II and the second of Pzkw III made available from the 5th Panzer Regiment. Large amounts of armor were not made available due to the risks in transport and the scarcity of available shipping. No armor could be transported by air.

ITALIAN UNITS—



The 33rd Regiment may be considered representative of regular Italian infantry during 1942. It consisted of 3,332 men organized into three battalions (each 876 men) plus support companies. The "Livorno" Division was well trained and organized and fought well in Sicily a year later.



The Italians had detachments of paratroops since the beginning of the war but they did not compose an exclusively parachute division until a German training mission arrived in early 1942. "Folgore" was an elite unit, comparable to German units, and it fought well and gallantly at El Alamein.



The San Marco Regiment was a navy marine unit and was easily the best unit in Italy. It was well trained, well led, and its members fought with great determination. Originally, the regiment was raised for special small unit missions but eventually the regiment expanded to seven battalions, four of which fought in Africa. At Malta, commando detachments were to make special attacks against forts Benghaisa and Delimara.



On paper the normal Italian artillery regiment had 2769 men and 36 guns, but for the Malta operation the heavy artillery was removed from divisional command. For each division this left two groups of twelve 75mm howitzers. The light artillery unit for each division consisted of the independent mortar battalion of 529 men and 27 mortar tubes. The Italian 81mm mortar was considered one of the most effective in Europe.

command blamed many of its difficulties on the lack of replacement aircraft rather than face where the problem more squarely stood: an inability to set policies and a lack of ground organization. On Crete the ground organization problem was particularly acute. The ground crews had little equipment, no facilities, no back-up personnel, and were reduced to cannibalizing damaged aircraft to keep a few in the air. Clearly, for the game no RAF units could effectively operate from bases on Crete. In examining the historical record, these twin problems of poor policy making and lack of ground organization appear endemic to all British military operations outside of Britain. It is little wonder that the other service arms lost confidence in the RAF. One British seaman was heard to say as he inflated his lifebelt, "This is all the ruddy air support I'll get this trip."

As the British air operations faded away the Luftwaffe gained an undisputed command of the air over all the Aegean and much of the Eastern Mediterranean. While some German air strength was always directed against Allied shipping, its focus was on operations over Crete. In the game the Luftwaffe is represented in three ways. First, the Allies have limited road mobility due to the pervasiveness of German fighter planes. This mobility is further hampered by fighter plane concentrations. Second, there is strategic bombing of specific types of military targets. Third, the Luftwaffe is represented as combat strength points to fulfill its mission of tactical support of the ground troops.

Tactically, the Luftwaffe is represented as strength points rather than as individual aircraft formations. This reflects the fact that aircraft were dispatched from the airfields as fast as they could rearm and refuel, forming up in battle as ad hoc groups. It is specifically a strength point representation in the game as this directly relates its function as "flying artillery" to the combat system. The alternative would have been more game turn phases with the resultant complexity of play. The only difficulty tactical air support had in the actual battles was where the British figured out the ground call signs. In sum, German tactical bombing proved quite effective in Crete.

In contrast, strategic bombing had its difficulties. Several targets were neutralized but not destroyed. The AA batteries, for example, could be knocked out only by ground attack. This is why special glider detachments were assigned to attack AA units in Suda Sector. The cities were also Luftwaffe targets although such bombing was intended as a terror device. Specific military targets other than fixed installations could not be readily identified because of the excellent British camouflage. Strategic bombing was limited to these roles and is thereby not part of the game's combat system. Therefore such missions are resolved on a separate table with results having a much different effect than found in combat results.

THE DESIGN OF MALTA

With the completion of the CRETE design a complete game system for use in another parachute game was available. While CRETE was built first, MALTA tested many of the design features found in the CRETE system and thereby provided an instant feedback as to the success of each design solution. This feedback aspect is perhaps quite unusual in wargame design because the changes occurred before publication of either game. It was fortunate that the MALTA design was in no way forced by some element in the CRETE design. Generally, many of the same historical conditions present at Crete were also present at Malta one year later, thus there was already the design "solution" for: nature

of combat, game scale, time frame, fleet activity, air operations, and physical lay-out for the game. The big differences in this historical subject were that: first, it never actually occurred and second, the Axis placed more emphasis on the amphibious phase of the invasion. Despite the many similarities, *MALTA* had many unique design problems.

Because the invasion never took place there was the problem of what likely invasion date should the game assume. Malta presented a problem to the Axis from the very beginning of the war. Each year the Axis prepared another invasion plan. There was

the Pre-War Plan, the 1940 Plan, the 1941 Plan, and several 1942 plans. No wonder that by mid-1942 the Italian general staff was anxious to get the invasion underway. The original game contained scenarios reproducing each plan, thereby leaving the players with the decision on most likely invasion date. But the scenarios were omitted from the final version of the game. With such necessary size and complexity, they would never have been played. The scenarios had really been designed for the avid and interested wargamer, so rather than entirely forget them, they are presented here. The most likely invasion in my opinion was the one scheduled for spring 1942. The

plan for this date was the one chosen by Avalon Hill to be the actual game. One of the major reasons for choosing this date was the psychological predisposition of the Axis leaders. Mussolini did not feel the invasion would succeed without German help. But Hitler had a phobia about invading islands, particularly after the Crete experience. Furthermore, he was convinced the Italians would only run if they ever had to oppose the British fleet. For the previous two years neither Axis partner seemed willing to make any decisive Mediterranean

Continued on Pg. 32, Column 1



Allied Units



Headquarters staffs were, of course, important to the operation of any battle. In the game, each headquarters unit represents commander, staff, signals, various liaison sections, and occasionally a defense platoon. The "Creforce" and Malta" HQ units each represent more headquarters personnel than found at brigade level but these had no additional combat effectiveness.



These composed the original defense force on Crete before the evacuation from Greece. While generally up to strength in manpower they lent out much of their equipment to the evacuees. They were still well organized and had not suffered the debilitating effects of a long retreat.



The M.N.B.D.O. (Mobile Naval Base Defense Organization) was a navy unit (Royal Marines) designed primarily for the defense of naval bases, as its name implies. 1,941 men of the organization were on Crete while another 1,000 were still at Alexandria, Egypt. This organization possessed all the anti-aircraft defense, coastal defense, signals, workshops, landing and command equipment necessary for the operation of a port. It was brought from England specifically for Crete, arriving at Suez on 21 April. It arrived at Suda between 10 May and 15 May.

The main body consists of the Signals unit (the 0-0-2); 684 signals, HQ, pioneer, and workshop personnel from the MNBDO plus attached HQ and staff personnel from other services. Scattered in four detachments on Crete the "23/RM" unit was originally an LAA unit but on Crete was armed instead with light machine guns. During the battle a composite RM battalion was formed from assorted armed RM detachments. This is represented in the game by the MNBDO infantry and the "S/L RM" units. The remaining units were generally armed as intended. The two coast artillery batteries had four 4" Mk IV L/40 guns (range 10,200 yards) and 518 men between them. The two heavy AA batteries had sixteen 3" AA guns and 172 men between them. Generally, the 3" AA guns (vertical effective range 20,000 ft) had not proven equal to the task of high

altitude AA protection and were in the process of being replaced by the 3.7" AA gun (vertical effective range 32,000 ft).



This battalion held the vital Hill 107 overlooking Maleme airfield. While it was short on standard equipment and had only 644 men, it had within its perimeter RAF personnel, ten Bofors guns, machine guns, a coast artillery battery, and two Matilda tanks. The unit was well trained but a confused command structure impeded co-ordinated action. Furthermore its own commander chose to retreat at the wrong moment.



The Greeks were, for the most part, untrained, ill-equipped, and unorganized. They had no transport, and they were armed with five different types of rifle and an average of less than 20 rounds of ammunition per man. The deficiency was partially mollified by using weapons captured on the battlefield but so many were ill armed that the units dissolved in combat. The 6th Regiment had 1485 men but the units overall averaged about 1000 men, nearly all recruits. The Gendarmes unit (800 men) was disciplined and performed respectably by repelling all German attacks on Retimo.



This is a cross-section of the composite units employed on Crete going from bad to the worst. The "comp/NZ" unit was composed historically of 1007 men arranged into five companies. These were armed men from the support services: artillerists, truck drivers, and supply personnel. They had little to no training as infantry but fought well considering their background. The "Roy Per" unit represents a very similar situation but with only about 700 men. Originally it was just a camp for men about to be evacuated to Egypt but during the battle it organized as a combat unit and sent a detachment to the nearby village of Perivolvia to help guard the King of Greece; hence the unit's name. The "comp/17" battalion consisted of remnants of the 17th Australian still on Crete. Its 387 men had only 270 rifles between them and simply had no other weapons. None of these formations had trained as a unit.



The artillery on Crete was nearly as bad as some of the infantry. For unexplained reasons the Allied command did not wish to risk 25 pounder artillery on Crete so 100 captured Italian pieces (generally 75mm) were sent instead, but only 49 survived transit. These guns, some of which the Italians had originally captured from Germany during WWI and others from France during the current war, lacked optical instruments, charts, and signaling equipment. Some sighting instruments had to be fashioned literally from chewing gum and bits of wood. Only 300-400 rounds were available per gun and some ammo lacked fuses. The "1 Lt" unit was the only modern unit with four 3.7" mountain howitzers. Unfortunately, because it had refused infantry support until too late it was overrun during the first hours.



Most of the AA units were modern, well supplied, fully equipped, and well camouflaged. On Crete the only big problem was the lack of sufficient numbers of guns. The "129" unit was equipped with twelve Bofors 40mm guns. The "234" unit was equipped with eight 3.7" AA guns.



All told on Crete there were 16 light tanks and 9 "Matilda" heavy tanks. As with the artillery, these were the worst available armor from Egypt. They seem to have been sent because it was known that paratroops would have almost no defense against them. Accordingly they were scattered in many small detachments. Armor losses were primarily due to mechanical breakdown.



When Italy entered the war on 10 June 1940 there was only one fully Maltese infantry battalion. Presumably it was organized and equipped along the same lines as the British regulars on the island like all other Commonwealth units. Eventually, three more battalions were raised but due to the continual siege these probably did not receive a full allotment of equipment and certainly could not train in large scale maneuvers. Whether the fact that they would be fighting for their homes and family would make up for lack of equipment, one can only conjecture.

DESIGN ANALYSIS *Continued from Pg. 17*

commitment. So given that attitude, if one delay was made, another delay would be even more likely.

The reason cited at the time was the need to allow Rommel to attack the Gazala Line and Tobruk before the British attacked him. After Tobruk fell then Malta would be invaded. But given the impetuosity of Rommel, such a halt would be most unlikely. Also politically, given the tremendous victory necessary to capture Tobruk, how could the Axis revert to a defensive posture in North Africa?

Given the approximate date for each invasion plan the next step was to develop an order of battle for each of those plans. Since the battle never actually took place, popular histories and even some of the official histories gave little note to forces available. Some detective work with international assistance filled many gaps and from the mass of data the scenarios emerged. Interestingly, the critical factor limiting all plans was the Axis lack of amphibious invasion craft, exactly the same problem faced earlier by the Germans in 1940. The Italians had no amphibious technology beyond commando operations and were eventually forced to import invasion craft the Germans had constructed for use in the now cancelled Operation "Sealion." Still, these did not fulfill invasion force requirements and had to be supplemented by lagoon schooners, ferries, and fishing boats. With the multiplicity of invasion craft, invasion rules grew more and more complex. But with the game reduced to just one scenario, the problem of special invasion craft could be ignored.

Finally faced was a problem that is probably uniquely Maltese: could all those stone forts on Malta really withstand a modern assault? Central to the *MALTA* design was the analysis of the effectiveness of the Maltese fortifications combined with field, coast, and anti-aircraft artillery. Research showed that the fortification system, while extensive was too old and too small to withstand modern artillery. Yet when a game was tested without them, British resistance broke after the first day. The best solution was to have three classes of fortifications: bastions representing the immense walls surrounding some cities, forts that are large enough to provide cover for infantry, and battery positions which were really those forts too small for anything else. Actually, the coast artillery required fixed installations and could not be moved about. This choice of three types represents considerable testing.

On Malta during spring 1942 there were hundreds of artillery pieces. In daily use were the 112 heavy AA guns and 138 light AA guns. All modern weapons, these composed one of the thickest anti-aircraft defenses seen during WWII. Probably first to see action if the Italian invasion fleet arrived would be the 37 coast artillery pieces. Some former naval pieces probably had little effectiveness while one battery, six 6 pounder Mk I twin mounted guns, had a very high effectiveness. Seven coast artillery pieces, 9.2" B.L. Mark X, comprised the heavy coast artillery. Presumably these were mounted in barbettes with all-round traverse to prevent an enemy from firing from the blind side of the island with impunity. This artillery was intended to engage enemy warships. Also available were about 40 pieces of "bush" artillery similar to that field artillery employed on Crete. Due to their probable one-shot effectiveness these have been incorporated into the beach defense companies. Probably last to see action would be the one regiment of regular field artillery. It was armed with twenty-four 25 pounders, a most effective weapon. Finally, the three coast artillery pieces stationed on Gozo Island (just to the north-west of

Malta) would not have had any effect on the outcome on Malta proper.

Would anyone ever have created a *MALTA* by itself? Immediately after selling *CRETE* to Avalon Hill I sold them on the idea of including *MALTA* with *CRETE*. In the early design stages *MALTA* was only a flimsy scenario card, but research into the subject and regular playtesting brought *MALTA* out of the pits and into the foreground as a game that could stand on its own. The value of wargaming as an historical tool goes beyond analyzing what history was like; it allows the exploration of the imponderables of history. Some games have been likened to "paper time machines." *MALTA* and *CRETE* are faithful recreations, but they also are games that people play and talk about, games that can't be "solved" in the first sitting.

