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ROMMEL, OPERATIONAL ART AND THE BATTLE OF EL ALAMEIN

by

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Commander, USN

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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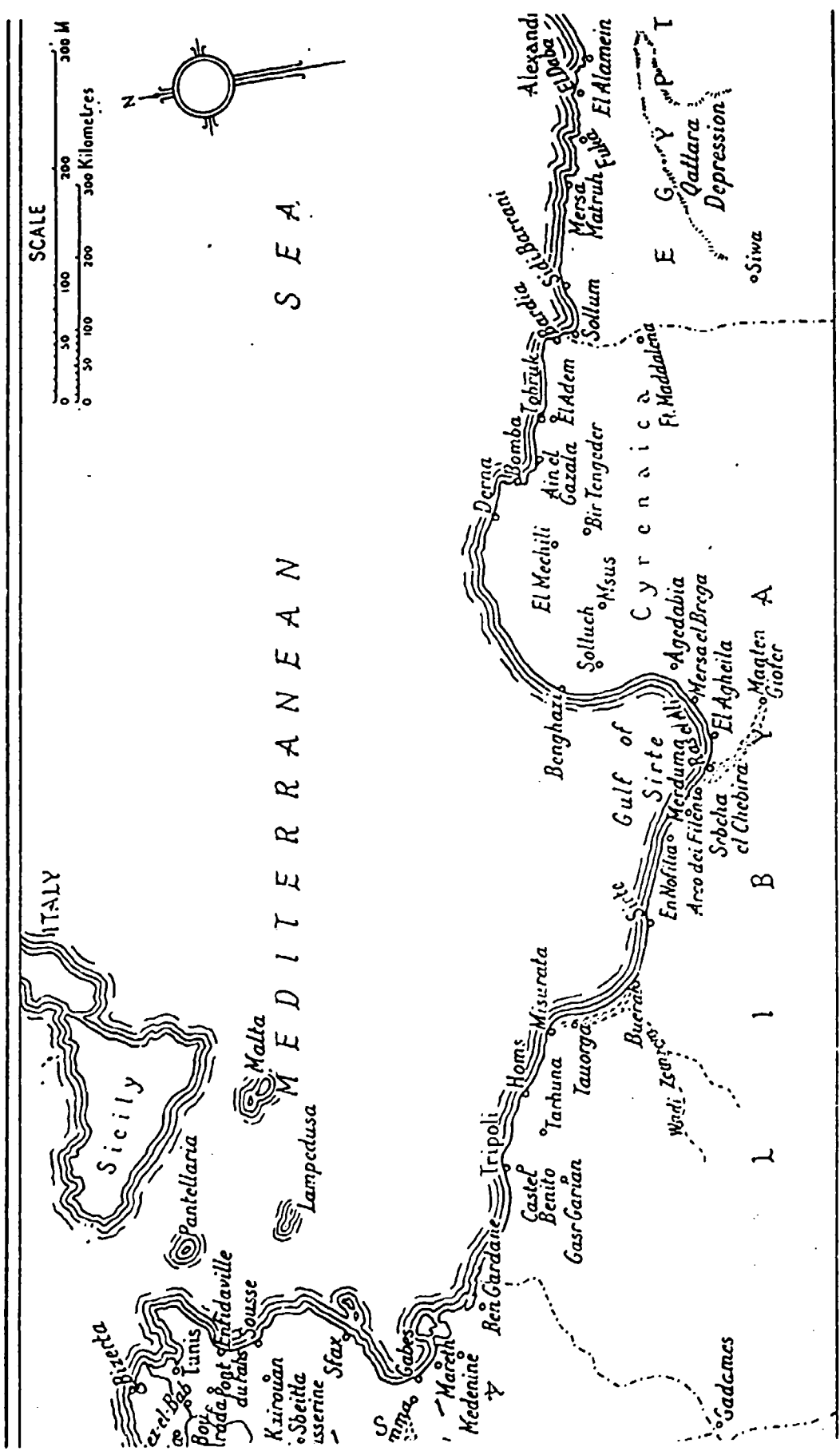
Field Marshal Rommel's North African Campaign

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THE COAST OF NORTH AFRICA FROM ALEXANDRIA TO TUNIS

Source: B.H. Liddell Hart, ed., The Rommel Papers (New York: Harcourt, Brace and Company, 1953), facing page 418.

ROMMEL, OPERATIONAL ART AND THE BATTLE OF EL ALAMEIN

CHAPTER I

INTRODUCTION

The North African Campaign between the Allied and Axis forces during 1941 to 1943 faced many of the obstacles present in modern warfare. It was based on support of coalition forces and was exposed to all the limitations of that structure. Italy set the stage in Libya with its unrealistic military goals that could not be supported by its poorly trained troops, outmoded equipment and weak leadership. The British were present in Egypt separated by only a wire fence along the border to Libya. They were there to protect assets viewed critical to Allied war strategy and once Italy joined the war, attacked the Italian positions. This was the beginning of the North African Campaign that would last for 28 months, involve desert warfare from Egypt to Tunisia and mark the end of Axis presence in Africa.

Hitler feared that Mussolini would take Italy out of the Axis Alliance if critically defeated in Africa and elected to send a supporting defensive force. This was commanded by General Rommel, later to become Field Marshal, who surpassed all expectations in battlefield success. He also presented the Axis leadership with unexpected demands and problems that directly affected Hitler's global war strategy. How the Axis powers dealt with North Africa is a good demonstration of the

requirements faced by current leaders in their warfare strategy. Examination of Rommel's operational art exposes the basic effects of the principles of war and exhibits many of the limitations and critical areas prevalent in warfare.

This paper will concentrate on the period from Germany's intervention in February 1941 until the defeat at the Battle of El Alamein in November 1942. Rommel's most successful offensives and final retreat took place during this time. It will look at the introduction of Rommel's tactics, strategy and personality into the battlefield. The effects of concentration on the tactical level of war at the expense of both operational planning and strategic guidance will be examined. Poor coordination of strategy, diverging goals and ineffective command and control are viewed in the context of coalition warfare. The debilitating effect from lack of adherence to logistical preparation and limitations is investigated. Emphasis will be given to the difficulty Rommel faced in meeting his logistical requirements and the critical affects on his plans. Allied response to Rommel's strategy, competing force comparisons and Allied strengths and weaknesses will also be examined.

CHAPTER II

AXIS OFFENSIVE TO EL ALAMEIN

Prelude to Rommel. During the early stages of World War II, the western desert of North Africa served as the border of the British defense of critical Middle East oil and access to the Suez Canal. The British viewed the Italian held positions in Libya as a threat to their assets.¹ Following Italy's entering of the war in June 1940, the heavily outnumbered British forces began incursions across the double wire fence into Libya and met with success against the Italian troops. An Italian counter-offensive force of 215,000 men advanced against the British forces of 36,000 men in September 1940. The British were initially pushed back but after receiving reinforcements of troops and heavy armor, succeeded in outflanking the Italian Libyan defenses. The British drive under General O'Connor into Cyrenaica effectively destroyed the Italian resistance and resulted in the capture of over 130,000 prisoners.²

Hitler saw the loss of North Africa as more important to the maintenance of the Axis Alliance than as loss of a critical military position. In comparison to other commitments in the Balkans, North Africa was a secondary theater in importance. The British were also preoccupied with the Axis movement in the Balkans and reduced their troop strength and logistics away from North Africa. This was the

general situation presented to Rommel when he arrived in Libya in February 1941 as commander of the Deutsche Afrika Korps (DAK).³

The German campaign in North Africa was to last until the British and United States captured the Tunisian cities of Tunis and Bizerta in May 1943. This opened the entire North African coast to Allied control, allowed the exposure of Italy to invasion and ended the Axis threat to Egypt and the Suez Canal.⁴ The actual turnover of mastery of this campaign can be centered on the critical battle at El Alamein where Rommel was put on the final defensive and withdrawal by November 1942.

Force Structure. Rommel's initial actions upon arrival in Tripoli were to become familiar with the terrain, organize his staff and prepare the forces. He was subordinate to the Italian Commander in Chief North Africa, General Gariboldi, but was granted significant operational control of the coalition ground forces. He was also allowed the ability to appeal to the German Army High Command (OKH) in Berlin when confronted with any suspect Italian orders, which he did on many occasions. In fact, Rommel routinely addressed his complaints directly to Hitler if the German command staff was seen as restricting. Luftwaffe air support remained independent of his chain of command and was coordinated through his staff as necessary. Unfortunately, Rommel had little regard or respect for the combat ability and

perseverance of the Italian forces. He demonstrated early in his command that he had little intention of complying with Italian directives.⁵

Rommel was personally selected by Hitler for the DAK command due to his demonstrated performance at semi-independent operations, aggressiveness, initiative and tactical skill. He had been given the primary task to sustain a credible defensive blocking force against British incursions into Libya and consequently reinforce the Italian morale. The British had already halted General O'Connors offensive into Libya to provide additional forces for the operations in Greece. Rommel used this factor to request reinforcements for the conduct of offensive operations against the weakened British structure. His request was disapproved by both the Berlin Army High Command (OKH) and German High Command (OKW) due to the more critical requirements of the developing Russian campaign. However, he immediately initiated limited scouting tactics that quickly developed into a full Axis offensive push to the east.⁶

The relevant issue to observe at this point is the basis of the German North African Campaign in its initial stages. Rommel was given a defensive role that conflicted with both his basic personality and combat track record. He was subjected to a confusing and convoluted coalition chain of command that could be circumvented at will. He held contempt and little personal respect for the Italian coalition forces

and leadership. The result was that Rommel exercised a near total independent command prerogative that tended to ignore both Berlin and Rome directives. This factor is significant when balanced against the secondary precedence given the North African theater. It has been theorized that Rommel's unplanned successful offensive misdirected critical logistics and directly interfered with Hitler's strategic plans for Barbarossa.⁷ However brilliant Rommel's desert tactics were, they failed to address and coordinate the Axis strategic goals. "For Rommel, battle was everything- even as Corps commander, he saw it as a tactical subject to which strategy was subordinate."⁸

Logistical Limitations. The North African Campaign is a classic example of an operational force over-extending its supply and sustainment capability. The established Italian logistic network was deemed sufficient to maintain the defensive plan for Libya but was vastly inadequate to match Rommel's eastward offensive. Rommel had been promised sufficient supplies and support to meet his demands and would come to view his critical shortages as a result of coalition ineptness, false promises and lack of logistic effort.⁹ Rommel also can be criticized for his lack of attention to logistic administration. If he had been more directly involved, he might have delayed his plans or modified his tactics to adequately meet the limitations.

Rommel believed that the British were momentarily weak, a vulnerability which had to be exploited in order to gain the initiative. . . . Again, there is little evidence Rommel concerned himself with how his operations in North Africa would be sustained. Although he was aware of his logistic shortfalls, what he saw as a unique opportunity to gain the initiative was an overriding factor in his decision to press eastward.¹⁰

Rommel met with unexpected success in the face of the retreating British 8th Army. Even though influenced by his decreasing supply capability through the lengthening logistic chain from Tripoli, he was able to push back the weakened British and take advantage of their captured supplies and abandoned vehicles. By 10 April 1941, Rommel prepared to attack the British defense position at Tobruk. He was unable to break the defenses with his available forces and requested reinforcement. His second attempt also met with no success and further depleted his operational reserve.¹¹ Tobruk marks the critical point at which Rommel should have fully devoted his attention to improving all aspects of the logistic network limitations. It was evident at this stage that his offensive aspirations would have to be modified or delayed if there was any predictable chance of future success. The factors to overcome were the increasing British air interdiction success of supply shipment from Italy, lack of coastal shipping available to move cargo from Tripoli to Benghazi, lack of railroad and road capability, lack of land cargo transportation and the inherent problems with maintaining a 1000 mile supply chain from Tripoli. Rommel reacted to this situation through the perception that he was limited in his

actions due to the Italian responsibility to provide the needed supplies.¹²

Rommel maintained his encirclement against Tobruk but the British breakout Operations Battleaxe and Crusader succeeded in pushing him back to Agedabia. Decreased Allied interdiction success of Axis supply shipping and port facilities allowed Rommel to rebuild and strengthen his forces. He launched a successful counter-offensive that captured Tobruk and pushed the British 8th Army back into Egypt by 21 June 1942. Rommel benefited greatly from the captured fuel supplies and vehicles during this phase of his offensive. It was estimated that 85 percent of his transportation vehicles were of British origin by the summer of 1942. Not to be satisfied with partial success, Rommel continued his drive into Egypt after the retreating British and initiated his attack on El Alamein on 1 July.¹³

Rommel's ability to absorb the 8th Army offensive and capture Tobruk exhausted his built up reserves. The British reemphasized their efforts on disrupting Rommel's current 1500 mile supply chain and a combined naval and air campaign succeeded in virtually destroying the Axis logistic network.¹⁴ The limited options open to Rommel required a delay in his offensive plans to rebuild and reinforce. However, Rommel felt his best chance at capturing the Suez Canal lay in a race against time. He was aware of the increasing requirements of Hitler's Russian operations, the British Axis interdiction

efforts and the increasing flow of Allied reinforcements to El Alamein. He felt the only chance of tactical success required continued advancement. Rommel calculated this ability on captured supplies and vehicles to form the primary sustainment method.

Intelligence Support. Several important factors contributed to Rommel's successful drive to El Alamein. Of most importance was his own ability to overcome obstacles, develop innovative tactics and instill total dedication in his forces. Also of importance was the role intelligence support played in the development of his offensive plan. During the first year of his campaign, Rommel was provided with valuable intelligence capability. This support decreased as the offensive developed due to attrition of men, equipment and increased awareness by the enemy. The Allies were not without their own resources with the Ultra signal intercept capability. Unfortunately, the same techniques that frustrated Rommel's superiors also reduced the effectiveness of their intercepts. Rommel routinely failed to notify higher command of his intentions and when done, he frequently resorted to messenger documentation or face-to-face interview.¹⁵

Rommel was supported by imagery intelligence (IMINT), signals intelligence (SIGINT) and human intelligence (HUMINT). IMINT was provided via the Tenth German Air Corps operating out of European bases. The Corps supplied timelate support as

able under their tasking requirement to support the entire Mediterranean operations. More valuable surveillance capability was available from small spotter aircraft that were attached to Rommel's forces. SIGINT was provided from the 56th Signal Battalion attached to the African command. It is credited with developing the majority of the Allied order of battle. Excellent use of the U.S. diplomatic Black code detailing British intentions was supplied by the German Army High Command Abwehr counter-espionage unit. HUMINT was considered the most valuable intelligence tool. It was derived from prisoner interrogation, reconnaissance battalion reports and agent employment.¹⁶

Rommel's tactical plans for his offensive following the British force drawdown in early 1941 were based heavily on the information from his intelligence assets. He was continually supplied critical details on British intentions for reinforcements, defensive positions and minefields. Much of Rommel's incentive to quickly push to Tobruk was based on intelligence detailing Allied defense intentions and locations. The British thrust to breakout of Tobruk was monitored by Rommel's radio intercept capability and combined with his ground reconnaissance. It allowed him to position his defenses to defeat the British and regain the offensive.¹⁷

As much as Rommel benefited from his intelligence assets, he could have done better. His actions demonstrate the operational tendency to discount intelligence information that

conflicts with expectations or preconceived beliefs. He was surprised with the British Operation Crusader at Tobruk due to Allied efforts at radio silence and his belief of the inability of the British to mount the operation. Rommel also outdistanced the ability of his assets to provide accurate information. His rapid advancement into enemy territory frequently leading the assault put him out of the information loop and reduced the efficiency of his system.¹⁸ However, the point to emphasize is that Rommel can credit a large degree of his tactical successes to intelligence support. He exploited the capability and earned the benefits. "British military historians have credited Rommel with outclassing his opponents in his employment of intelligence assets and the information they produced."¹⁹

CHAPTER III

BATTLE OF EL ALAMEIN

Battle Overview. El Alamein is credited as the turning point in the Axis offensive in North Africa. A multitude of factors account for this. By the time Rommel reached El Alamein, his troops were exhausted and attrited to the extent that any dedicated resistance to their offensive would have forced them into a defensive position. His heavy armor and vehicle transportation were greatly reduced in number and working condition. The 1500 mile supply chain had been broken by Allied efforts and the Royal Air Force (RAF) was consistently harassing all Rommel's activities. Tank crews were counting their effectiveness by each gallon of fuel and tactics were limited to minimum assaults balanced by judicious use of ammunition primarily for self defense. Rommel knew that his situation was desperate but was convinced that any chance of success lay in the attack of the retreating British before they could reorganize and be reinforced. In fact, following the fall of Tobruk, Hitler was optimistic that Rommel was capable of defeating the British and capturing the Suez. This factor sidetracked the Axis plans for invasion of Malta that if successful would have significantly reduced the British capability to interdict Axis shipping.²⁰

Many of the problems that had been limiting the British success throughout the North African Campaign were under close

scrutiny by its leadership. It was viewed that the major reason for British failure was tactical inferiority.

Commonwealth troops had to learn the hard way how to combine the various elements in mobile warfare, a combination which the Afrika Korps had long practised. . . . German tactics were based on the use of anti-tank guns in an offensive role ahead of the tanks, which waited in cover, rarely firing on the move. Highly trained infantry units worked in concert with these, against enemy anti-tank defences.²¹

The British attempted to compensate for this deficiency through material superiority and a change in their command structure. General Montgomery was given command of the 8th Army headquartered in El Alamein in August 1942. He immediately reorganized both his staff and forces to efficiently coordinate the mass influx of reinforcements. He copied a successful technique from Rommel through the use of a highly proficient staff that could help isolate the commander from the fog of war. Montgomery was a proponent of static battles based on superior strength and logistics. Luckily, he was favored with a strong supply network protected by air superiority.²²

The Battle of Alam Halfa from 31 August to 6 September was the initial Axis thrust into El Alamein. The shortage of fuel and the extensive Allied minefields forced Rommel to modify his tactics. He was limited in his ability to maneuver and encountered British defenses reinforced with superior U.S. armor and artillery. After multiple attempts to break the British line, the critical shortage of fuel forced Rommel to withdrawal. Montgomery was an overly cautious commander who

would not attack until he determined that he had sufficient superiority to ensure success. He elected not to counter-attack the retreating forces and enabled Rommel the ability to build his own defenses.²³

Rommel had been defeated- by lack of support from his own side, and by cool logic and control on the other. No longer would he face an enemy army indifferently armed, loosely organized or indecisively controlled; no longer would his flair for movement, his willingness to take enormous risks, be enough to win.²⁴

The defeat at Alam Halfa forced Rommel to abandon his preferred tactics of mobile warfare and assume a defense in depth position. The critical shortage of supplies prevented him the ability to wage a realistic offensive and it was feared that any attempt at evacuation was impossible due to the threat of an Allied attack. In many respects, Rommel was in a trap and was forced to do his best at building a credible defense. The Allied forces proceeded to reinforce, train and refine their plan for the offensive breakout. They concentrated on the use of deception to convince Rommel that they were building for a southern front attack while the north flank was the actual attack point. This proved successful and surprised the Axis forces on 23 October with the opening of an intense artillery barrage. The Allied forces succeeded with their breakthrough and by 4 November Rommel was in full retreat to the west.²⁵

Retreat to Tunisia. El Alamein was significant in that it signaled the end of Rommel's ability to overcome his

obstacles and Montgomery's enjoyment of an overwhelming disparity of forces. Rommel realized that continuation of current resistance was useless. The Allied forces were now fully integrated with the war capability from the U.S. industrial and manpower machine. The combination of non-stop attacks by British bombers and the battle exhausted state of his troops and equipment forced Rommel to evacuate all forces to Sidi Barrani and Sollum. It was while reorganizing at this location that Rommel learned of the 8 November Allied invasion Operation Torch in Morocco and Algeria aimed at seizing Tunisia. Rommel's intentions were either to retreat to the west regrouping his forces to prepare his best defense or enable their evacuation back to Europe.²⁶

In the weeks ahead, far greater difficulties were caused us by the lack of understanding of our higher authorities than by any activities of the British. There was, as I have already shown, only one course open to us- never to accept battle. A successful defence against a British outflanking drive- however ardently our masters may have desired it- was beyond all hope.²⁷

Rommel was faced with the complete disruption of his supply network during his retreat westward. The port facilities at Benghazi were either destroyed or lost to the advancing Allied forces and Tripoli was unable to provide support due to the intense interdiction success of British aircraft and submarines. Rommel did receive some limited fuel through the efforts of the Luftwaffe but had barely sufficient quantity to maintain his retreat, much less launch an offensive. Rommel received no strategic direction for the

North African Campaign until 26 November when Rome and Berlin requested that Tripoli be defended and an offensive attack be launched immediately at the British. Rommel appealed directly to Hitler for an evacuation of his forces but was told that it was a political necessity to hold a bridgehead in Africa.²⁸

Rommel was given some periodic relief from the attacks of the trailing British forces as the Allied supply route lengthened. However, he was not able to counter-attack the British outflanking forces due to fuel shortage and required all his tactical skills to maintain his retreat west. Complicating the situation was direction from Field Marshal Kesselring, Commander in Chief Southern Forces, requiring the majority of available supplies be sent to the German defensive forces in Tunisia. During early 1943, the Axis forces were also undergoing a reorganization of the command structure brought on by the addition of the Tunisian defense against the Allied invasion and the reassertion by the Italians to exert their directives. This did little to improve the chances of the Axis forces against a coordinated Allied effort supported by superior armor, defenses and intelligence. The Axis resistance was defeated in Tunisia by combined British and U.S. forces by May 1943.²⁹

CHAPTER IV

APPLICATION

Dominant factors have been established as leading elements critical to the conduct of war. They encompass command and control, strategy, tactics, logistics and technology. The basic principles of war form the outline for those factors to be employed. These principles include maneuver, concentration of forces, the offensive, unity of command, planning, security, surprise, simplicity, economy of force and command.³⁰ The North African Campaign exercised all of these elements and principles. An examination of the effectiveness of this application by the Axis forces demonstrates reasons for success and failure.

Command and Control. The Axis command structure in North Africa was flawed from the initial introduction of German troops in early 1941 until the final surrender of May 1943. The basis of the problem rested in the uneasy coalition and mutual distrust between Italy and Germany. The terms on which Germany entered North Africa were more political than military. Italy was not able to withstand the British forces and without assistance would have eventually dropped out of the Axis Alliance. Hitler thought it advantageous to shore up the northwestern African frontier with a credible defense, satisfy Mussolini's fears and hopefully bolster the Italian force back into acceptable fighting status. The selection of

Rommel as commander of DAK was an excellent choice based on his previous established battle record and command qualities, however, he had little use or respect for the Italian leadership. The DAK was programmed to fall under the control of the Italian African forces commander, but Rommel only paid lip service to this requirement. In fact, he would not hesitate to circumvent the German High Command (OKH) and appeal directly to Hitler if he felt it necessary.

Rommel's outstanding battle successes were his ticket to relatively unobstructed command. It was not until the advantages of the Allied forces pushed Rommel back at El Alamein, that Hitler and Mussolini demanded what he thought were unreasonable demands threatening the survival of his exhausted forces. It is evident that many of the critical requirements of a viable command and control structure were absent at the higher levels of command. Communication was limited, strategic directives were ignored, established chains of command were bypassed and military orders were disregarded. Some of this can be attributed to the inherent problems of a highly mobile campaign, the involved personalities and the technological limitations of World War II. Rommel's total concentration of battle at the tactical level earned him the reputation as an outstanding field general, but it also contributed to factors that were critical to his success. His lack of logistical support was due greatly to the national priorities of Hitler's war strategy which Rommel ignored.

Rommel's personal expectations for his tactical command structure attached the highest importance to the accurate execution of his plan. This is interesting in light of the fact he put little credence in directives placed upon him that conflicted with his views. It was his priority to be present at the battlefield to provide the flexible personal control he felt was a necessary quality of a commander.³¹ This factor frequently put him at risk and reduced the effectiveness of his coordination with his staff and other sectors of the battle. Even with these shortcomings, Rommel's personal command and control process worked effectively on the battlefield. Unfortunately, it was a major contributor to the lack of cohesion and efficiency of the Axis coalition chain of command. It also affected Hitler's global war strategy and diverted critical support from Axis European operations.

Logistics and Sustainment.

Logistics is the process of planning and executing the sustainment of forces in support of military operations. It includes the design, development, acquisition, storage, movement, equipping, distribution, and evacuation functions of supply, field services, maintenance,³² health service support, personnel, and facilities.

The North African Campaign, from its inception, was planned primarily to defend the interests of Germany's ally, Italy. A defensive capable German force sent to North Africa could reinforce the defeated Italians, stop any further British offensive push into Libya and prevent the loss of Tripoli. The initial forces and logistical support allotted

to Rommel's DAK were designed for maintaining a defensive posture extending no further than 300 miles from Tripoli. By the time Rommel had arrived at El Alamein, his supply chain encompassed a 1500 mile land route. North Africa was to be a strategic defensive measure designed for minimum interference with Germany's European operations.³³

As previously pointed out, Rommel's disregard for the directives from both the Italian and German authorities undermined the Axis command and control capability in Africa. Rommel's offensive push to kick the British back to the Suez lacked compatibility with the strategic plans and signalled the eventual demise of his goal. He felt that his tactical successes in the face of the weakened British forces would be sufficient incentive to alter Hitler's global plans to sufficiently support his campaign. This was an unrealistic expectation on Rommel's part, especially as Germany's eastern front demanded increasing logistical support. The lack of adherence by Rommel to follow the strategic guidance for the sake of his own personal tactical strategy was a significant mistake. This directly accounted for the totally inadequate support to sustain his campaign.

Rommel's expertise at mobile warfare was his tactical strength and the key to his success. Unfortunately, this strategy required an extensive need for fuel and supplies that the existing Italian logistical network was unable to meet. This network revealed an additional aspect of the weakness of

the Axis coalition. The Italian leadership did not give their economy the same emphasis as Germany and were unable to maintain production on the same level.³⁴ Whether this was a critical detriment to Rommel's supply chain can only be theorized. It certainly did not help that Rommel continually ignored or bypassed Italian directives. Even when Rommel succeeded in diverting increased supplies to his front through direct appeal to Hitler, the Allied success at interdiction of shipping proved counter-balancing. The integration of captured supplies into Rommel's strategy was a clever compromise but insufficient to maintain a credible force against the British. Rommel was superior on the battlefield but unable to overcome the critical logistical constraint on warfare.

Intelligence and Technology. Rommel's exploitation of the capabilities of his intelligence assets was a critical factor in his battle successes. His incorporation of basic assets such as spotter planes, ground force reconnaissance, prisoner interrogation and dedicated agents supplied the needed information to maintain his mobile strategy. Combining this with more refined capabilities of signal intercept, photographic reconnaissance and limited enemy code access resulted in excellent battlefield intelligence. Rommel's use of these assets was sufficient to maintain his tactical superiority over the Allies prior to El Alamein, even with

their use of the Ultra deciphering of the German code. Rommel's continual effort to incorporate and explore any source of information into his strategy demonstrates the benefits available.

Rommel's use of intelligence also demonstrated the inherent weaknesses and negative aspects when these assets were not given sufficient priority or reinforcement. He frequently out-maneuvered the capability of his intelligence to maintain accurate data on the forward battlefield. When intelligence indicated significantly different Allied capabilities or movements than expected, Rommel discounted the information. This contributed to some of the success enjoyed by the British at Tobruk. Rommel's availability of intelligence diminished as his assets were exhausted and not resupplied. If he had been able to maintain his intelligence capability, he probably would have been less susceptible to the successful British deception plans used at El Alamein. The same limitations that logistics placed upon his access to fuel also restricted the replacement of intelligence trained personnel and equipment.

The Allies gave much credit for their defeat in North Africa during 1941 due to the German's superior technology in heavy armor and artillery.

But it is not only the quantity of tanks which matters, even more important is their technical performance, manoeuvrability and the range and calibre of the tank guns. For the main thing in the open desert is to bring the enemy under effective fire and start hitting him

before he is in a position to hit back.³⁵

The Germans arrived in Africa with their 75mm Mark III and Mark IV Panzer divisions. These tanks were superior in armor plating thickness, dependability and firepower. Rommel also received new improvements in the Mark III and IV Specials which included hardened armor and high velocity long barreled guns. The Italians inferior 47mm M13 tanks were only a threat to infantry. The British Miltada and Crusader tanks were mechanically unreliable and deficient in armor protection and firepower against the threat. The Germans were capable of destroying the British armor at ranges of 2000-3000 yards while the British were required to close to within 600 yards to effect a kill. It wasn't until 1942 and El Alamein that the British were reinforced with U.S. 75mm Sherman tanks equal in capability to the best German main battle tank.³⁶

Artillery played a major role in desert strategy and defensive reinforcement. The German 88mm anti-tank and anti-aircraft gun was not a new weapon but was considered the most capable and successful of the campaign. German airpower also had the advantage of superior performing aircraft in the Messerschmitt 109F/G and Junkers 87 "Stuka" divebomber. However, German equipment technology could not overcome the British advantage of a strong supply network.³⁷ Less capable weapons in greater number reinforced with replacements and fuel was the British answer to German technological superiority.

CHAPTER V

CONCLUSION

German intervention into North Africa on behalf of the Italians lasted from February 1941 to May 1943. During that phase, Rommel exercised his initiative and defeated the British forces throughout Libya and Egypt. During November 1942 to May 1943, the Germans experienced a full retreat to Tunisia and their final evacuation from Africa. Rommel's offensive saw the implications of maintaining a logistical land network up to 1500 miles reinforced by an ineffective Italian supply system. This logistical restriction on his operations served as the primary cause of his defeat at El Alamein.

Warfare is never clear and concise as to reasons for its failures and many other factors contributed to the Axis defeat. Rommel's deliberate refusal to obey higher command directives and coordinate his operational strategy with strategic plans laid the groundwork for his eventual defeat. Weaknesses in the Axis Alliance exposed the mutual mistrust and diverging goals of Germany and Italy. This served to reduce the effectiveness of the command and control system and allow Rommel the opportunity to effect his personal plans. Combining these considerations with a logistical system lacking proper direction and emphasis resulted in a fatal mismatch between Rommel's operational strategy and operational resources.

Germany enjoyed mechanical and tactical superiority on the battlefield. Excellent use of all assets including intelligence, mobility, flexibility and weapon capability combined with Rommel's unmatched tactical expertise could not defeat British sustainability. The relevancy of this campaign to modern warfare demonstrates the necessity to balance the relationship between tactical implementation and operational restrictions with strategic goals. This requirement grows even more critical under the increased complexity of coalition warfare. An effective command and control structure from the national command authority to the operational commander must serve as the conduit of this application.

This requires that operational commanders and their staffs understand the intent of the strategic guidance, produce a plan within the established guidelines, and conduct operations which fuse tactical successes into operational accomplishment of desired strategic goals.³⁸

ENDNOTES

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3. Derek Jewell, ed., Alamein and the Desert War (London: Sphere Books Ltd, 1967), pp. 13-15.
4. William L. Langer, ed., An Encyclopedia of World History (Boston: Houghton Mifflin Company, 1972), pp. 1148-1149.
5. Kenneth Macksey, Rommel: Battles and Campaigns (London: Cox and Wyman Ltd, 1979), pp. 46-49.
6. Donald E. Kirkland, "Rommel's Desert Campaigns, February 1941-September 1942: A Study in Operational Level Weakness," Unpublished Research Paper, U.S. Army Command and General Staff College, Fort Leavenworth, KS: 1986, pp. 4-5.
7. Heckmann, pp. 23-24.
8. Macksey, p.49.
9. B.H. Liddell Hart, ed., The Rommel Papers (New York: Harcourt, Brace and Company, 1953), pp. 96-111.
10. David F. Tosch, "German Operations in North Africa: A Case Study of the Link Between Operational Design and Sustainment," Unpublished Research Paper, U.S. Army Command and General Staff College, Fort Leavenworth, KS: 1987. pp. 6-7.
11. Tosch, pp. 9-10.
12. Ibid., p. 11.
13. Ibid., pp. 12-20.
14. Kirkland, p. 12.
15. Heckman, pp. 48-50.
16. Paul C. Washington, "Rommel and the Use of Intelligence: The War in North Africa February 1941-January 1942," Unpublished Research Paper, Defense Intelligence College, Bolling Air Force Base, Washington, DC: 1991, pp. 5-8.
17. Washington, pp. 9-31.

18. Ibid., pp. 32-34.
19. Ibid., p. 33.
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23. Ibid., pp. 166-168.
24. Jewell, p. 41.
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26. Hart, pp. 345-347.
27. Ibid., p. 359.
28. Ibid., pp. 364-366.
29. Macksey, pp. 164-185.
30. Christopher Bellamy, The Evolution of Modern Land Warfare: Theory and Practice (London: Routledge, 1990), pp. 11-13.
31. Hart, p. 226.
32. Headquarters Department of the Army, Field Manual 100-5 Operations (Washington, DC: U.S. Government Printing Office, 1993), p. 12-1.
33. Kirkland, pp. 16-17.
34. Tosch, p. 34.
35. Hart, p. 185.
36. Phillips, p. 35.
37. Ibid., pp. 41-42.
38. Kirkland, p. 31.

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