

NAVAL WAR COLLEGE
Newport, R.I.

LINKING OPERATIONS TO STRATEGY AND TACTICS
IN THE DARDANELLES

by

Keith T. Duncan

LCDR, USNR

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 of the Department of the Navy.

Signature:

Keith T. Duncan

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ABSTRACT

In February 1915, Britain and France launched the first of a series of operations of the Gallipoli Campaign to force the Dardanelles Strait and knock the Ottoman Empire out of the war. This operation was a purely naval effort that came very close to succeeding. It provides an interesting case study of the connectivity between operational design and strategy and tactics. The strategic goal was clearly thought out and supported the war effort. The operation was feasible because the Allied Navies enjoyed tactical superiority over the enemy. The ultimate failure of the operation was not due to a proper connectivity between the levels of war but rather it was due to a lack of perseverance at the tactical level.

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INTRODUCTION

It is often said that Napoleon was the brilliant master of the operational level of war but because he never linked his operational successes to feasible strategic goals, his many victories did not result in any lasting strategic gains. Just as successful operations cannot overcome poor strategy, so too at the other end of the warfare spectrum, must operations be achievable given the tactics employed. The trench warfare of World War I is considered a classic example of how the operational level of war foundered on the rocks of unimaginative and grossly ineffective tactics. As in land warfare, naval operational design must correctly link strategic objectives and tactical realities. The Japanese attack on Pearl Harbor employed superb tactics in a brilliant operation that supported a fatally flawed strategy. The British went to war in the Falklands against Argentina employing superb tactics in a well-conceived operation that supported a feasible and sound strategy.

This paper explores the connection of the operational level of war with the strategic and tactical levels using the case study of the Gallipoli campaign of World War I, specifically, the Allied Navys' attempt to force the Dardanelles Strait. While the operation culminating in the climatic battle of 18 March 1915 failed, it was not because the operation incorrectly linked the tactical realities and the strategic objective; it did. Rather, the decision to prematurely end the operation short of success resulted from a mistaken conclusion that the tactics didn't support the operation, when in fact, only perseverance was lacking.

THE STRATEGIC LEVEL

Stalemate on the Western Front

By late 1914, it was clear to the governments of the warring powers in Europe that a state of deadlock existed on the Western Front. After only three months of fighting the British and French had suffered nearly a million casualties. British proposed solutions to end the deadlock coalesced into two tracks on two levels--tactical and strategic. The first involved breaking the trench barrier by means of developing a machine invulnerable to machine guns--the tank--that could restore tactical freedom of movement to the front. The second idea involved strategic maneuver. Rather than seeking a breakthrough on the Germans' impregnable lines in France, the Allies should turn the whole position of the Central Powers either by an attack on Germany's Baltic coast or in the Balkans.

Developing the Strategic Objective

In January 1915, the Russians, already reeling from German hammer blows, were threatened by the Turks in the Caucasus. The Turks had closed the Turkish Straits (Dardanelles and Bosphorus) to Allied shipping and Russian stocks of arms and munitions were running low. Ninety percent of Russia's exported grain and fifty percent of all her total exports came out through Dardanelles and a corresponding level of her imports including munitions passed the other way.¹ Opening the straits was considered vital to keeping Russia in the war. The Russians appealed to the British to take action against the Turks. The British responded affirmatively and committed themselves to forcing open the Straits.

The British Naval Mission that had recently departed Turkey,

knew the Dardanelles defenses well. The Turkish garrisons were few in number, badly lead, and poorly equipped. The British believed that the old forts and the gun emplacements guarding the entrance to the strait and the Narrows would be no match for the 12-inch and larger guns of battleships. Since the Turks were known to have mined the Dardanelles, the Admiralty reasoned that they should force the strait with obsolete battleships due for scrap in a few months. Their guns would be as effective against the defenses as those of newer ships and if a few of the obsolete battleships should be lost to mines, the losses wouldn't affect Britain's war effort. (The possible loss of the crews to man the new ships under construction was a consideration that emerged only after the operation commenced).

Because Kitchener and other British and French leaders were adamant that no troops could be spared from the vital Western Front, the enterprise was initially a purely naval affair. There was much opposition to the plan as some leaders--civilian, army and even a few admirals--doubted that the Dardanelles could be forced by the fleet alone without the assistance of the army to reduce the land defenses that flanked it. And they said, even if the Navy forced a passage, Army forces would still be required to occupy Constantinople. However, at the time of the decision, it was widely accepted that if the Dardanelles could be successfully forced, the Greeks or Bulgarians would then commit their armies to war against the Ottomans and march on Constantinople, in conjunction with the fleet.

Constantinople was the center of all Turkish economic, political, industrial, and military affairs. Its fall could very well mean the

fall of the state. Turkish political and administrative organization were weak and the domestic political situation was chaotic. The Ottoman soldiers were largely unpaid, ragged, hungry and short of nearly every type of weapon necessary for war against an industrialized state. The units guarding the Dardanelles were weak; the small fleet, with the exception of the German manned cruisers Goeben and Breslau, obsolete. Constantinople was easily thrown into turmoil and panic and Turkish governments had a predilection for bolting. Turkey's only munitions factories were on the city shore as was the War Ministry. Should an Allied Fleet appear off the Golden Horn, even without the support of an Allied army, the city might readily capitulate and the whole rickety empire collapse. After much heated debate, the British War Council on January 13, 1915 decided in favor of "a naval expedition in February to bombard and take the Gallipoli Peninsula with Constantinople as its ultimate objective."²

Analysis of the Strategic Objective

Would the strategic objective of capturing Constantinople have supported the overall British (and Allied) war effort? The answer is yes. Given the deadlock on the Western Front and the enormous number of lives it consumed, it made sense to attempt a strategic maneuver in the Balkans. If successful, the operation would keep Russia in the war and as long as Russia was in the war, Germany and Austria had to obligate many divisions to the East that might otherwise be released to fight the Allies in the West. Furthermore, Britain had her own vital strategic interests in the region--Egypt and the Suez Canal--threatened

by the Turks. Knocking Turkey out of the war, would free up the Australian, New Zealand, and Indian Army divisions assigned to protect Egypt for service elsewhere. Finally, since the Turks (goaded by the Germans), had already precipitously and unwisely entered the war against the Allies, attacking them did not entail the the drawback of forcing a neutral into a belligerent status.

A Dardanelles operation offered the potential to reap great dividends at a nominal cost. Even should most of the attacking battleships be lost--considered most unlikely--Britain still would retain in its Grand Fleet of modern warships, more than sufficient naval power to defeat any surface threat from the Germans.³ The plan offered a means to engage a surplus portion of Britain's military power without detracting from the main effort in Europe, in other words it exhibited economy of force. If the plan failed, little was lost; if it succeeded, much was gained.

THE OPERATIONAL LEVEL

The Operational Problem

The 40-mile long Dardanelles transit began in the Aegean Sea at the 4,000 yards wide entrance to the strait guarded by guns positioned at the forts of Sedd-el-Bahr at Cape Helles on the Gallipoli peninsula and Kua Kale in Asia. The main Turkish defenses were 14 miles up the strait where it constricted to 1600 yards--the Narrows--before widening to four miles eventually reaching the Sea of Marmara and Constantinople to its north. The main forts at Chanak in Asia and Kildid Bahr on Gallipoli along with some dozen smaller forts guarded the Narrows with 72 guns,

a series of torpedo tubes, minefields, and later a submarine net.⁴ The Turks also employed eight six-inch mobile howitzer batteries. All total there were some 100 guns along the length of the strait along with two divisions of infantry. In the vicinity of the Narrows covered by their guns, the Turks laid nearly all their mines--324 moored contact mines laid in ten lines across the channel. They kept only 36 mines in reserve. There were few significant defenses beyond the Narrows. German officers advised and in many instances commanded Turkish army units in critical sectors.⁵

Concept of Operations

The Admiralty selected Vice Admiral Sackville Carden as the operational commander. His concept of operations stated:

(A) Total reduction of the defences at the entrance. (B) Clear defences inside of Strait up to and including Kephez Point Battery No. 8. (C) Reduction of defences at the Narrows, Chanak. (D) Clear passage through minefield, advancing through Narrows,⁶ reducing forts above Narrows, and final advance to Marmora.

Carden planned on a force of 12 battleships (including four French), 6 cruisers, 17 destroyers, 6 submarines, 4 seaplanes, 12 minesweepers, and numerous other auxillary craft.⁷ Estimating the duration of the operation, Carden cabled to Churchill in January 1915:

Time required for operations depends greatly on morale of enemy under bombardment; garrison largely stiffened by the Germans; also on weather conditions. Gales now frequent. Might do it all in about a month.⁸

There were skeptics of the plan but they were mostly army.

The admirals, Churchill, and notably Kitchener all initially favored the plan and believed it would work. (Kitchener later released several divisions of troops to assist the Navy if needed, but they arrived in

the theatre too late to assist in the initial effort.) All dismissed the potential losses of old battleships as trivial.

Operational Maneuver

The Dardanelles plan may be viewed as an attempt at maneuver, a term usually associated with ground combat. Maneuver is defined as the employment of forces through movement supported by fire to achieve a position of advantage from which to destroy or to threaten destruction of the enemy.⁹ The point of operational maneuver is to gain the initiative, which in turn allows freedom of action while reducing the enemy's own freedom of action. The true end of operational maneuver is to ultimately bring psychological destruction of the enemy's will to continue resistance. In other words, maneuver is employed to produce psychological effects and to convince the enemy that further resistance is useless.¹⁰

The above concept of maneuver is applicable to the Allied Navys' attempt to force the Dardanelles. Rather than employing divisions or corps as the maneuver units, the Allied Navies employed squadrons of battleships. As in land warfare, the point of the naval operational maneuver was to gain freedom of action--to bring Allied power directly against the heart of the Turkish empire. And as in land warfare, the true end of the naval operational maneuver was the psychological destruction of the enemy's will to resist.

There are five forms of maneuver: frontal attack, penetration, turning movement, envelopment, and infiltration.¹¹ Carden's plan was equivalent to an army corps penetrating an opponent's front. The Turkish

"front" comprised the line of garrisons, forts, mines, gun and other obstructions from Gallipoli peninsula across the strait into Asia Minor. Given the forces available to the Allies--all naval and no army (save the Royal Marines)--the only types of operational maneuver possible due to the terrain, (the navy can only operate where there is a lack of terrain, for example the straits), was penetration and infiltration. (Infiltration was later employed by British submarines that managed to sneak through the defenses and inflicted great damage on Turkish shipping in Marmara). Once the enemy's line of defense--the Narrows--is penetrated, the Allied ships (armoured maneuver forces) pour through the breach and fan out behind the enemy's front--the Sea of Marmara. Operational fires are conducted against enemy LOC nodes and bases such as Bulair at the narrow neck of the peninsula. Demoralized, psychologically defeated by the shock of the operational maneuver and fearing being cut off, the enemy retreats in disorder from the peninsula and the Asian shore. The general sense of disorder and panic within Constantinople would be enormously amplified when the battleships appeared off of the Golden Horn and the citizens and government ministers witness the spectacle of the Goeben's sinking. Furthermore, as the city was largely composed of wooden buildings jammed tight together, there was little doubt in anyone's mind what would ensue should it undergo a bombardment.

Strategic--Operational Linkage

Carden's planned operation was correctly linked to the strategic objectives. The strategic objective of capturing Constantinople comprised

the strategic maneuver that would keep military pressure on the Central Powers from the east. Carden's plan provided the means to link the strategic goal to the operational level of war given the constraint of not using the army. It was only after the disastrous Gallipoli land campaigns of the summer and fall of 1915 that Carden's concept was widely ridiculed.¹² It appeared to many in February 1915 as well as today that it was quite possible that the Ottoman government would collapse with the appearance of the fleet. Carden's operational concept was based on a fairly accurate assessment of the Turks and their capabilities. Granted there was an element of wishful thinking in the scheme but given the possible payoff versus the potential costs, an attempt to force the Dardanelles by the Allied Navys alone was worth the effort.

THE TACTICAL LEVEL

Tactics

Carden counted on recent tactical innovations to ensure operational success. German use of heavy guns to reduce the Belgian and French fortresses on the Western Front and a brief long-range Allied battleship bombardment of Turkish entrance forts on November 3 that seemed to inflict considerable damage, appeared to demonstrate that British naval gunnery could reduce the Turkish masonry forts. The most powerful guns the Turks employed were a few 9.4-inch guns with a range of 11,000 yards. The British and French employed old but still powerful 12-inch guns as well as the 15-inch guns of the newly commissioned Queen Elizabeth. (undergoing gunnery calibration in the Mediterranean at the time of the operation and added to Carden's squadron). By standing off out

of range or out of bearing of the entrance fort's guns, the battleships could pulverize the enemy positions by indirect fire using the newly developed seaplanes and other ships for spotting. Then the older battleships could move in to close range of 2,000 to 4,000 yards and employ direct fire to finish the enemy guns. The forts guarding the minefields at the Narrows could similarly be reduced by indirect fire from battleships in the Aegean firing over the Gallipoli peninsula. Once the guns were silenced the minesweepers could clear enough of the mines to allow the battleships to move in close and finish the job.¹³

From the Allied perspective then, the basic tactical problem to overcome was the mines, the sweeping of which was fairly simple provided the guns that protected them were silenced, which again seemed a fairly straightforward and simple process. The operation was simply a repeated series of fires coordinated with sweeping.

Tactical Miscues

The Allied Naval assault commenced on 19 February with the battleships taking the entrance forts under indirect fire at long range. The mistake of the isolated 3 November Allied bombardment became evident as the Turks apparently learned from that encounter and returned fire only briefly before putting their men under cover. Both firing and spotting ships anchored in order to improve fire control accuracy. (Conservation of ammunition was a major concern.) After several hours of unanswered bombardment and numerous hits, the forts appeared severely damaged. But when demolition parties of sailors and marines landed to destroy the guns at the outer forts, they found many undamaged.¹⁴

As the operation continued into the strait, the Turks brought concealed howitzer batteries to bear on the anchored battleships. The ships had enormous difficulty targetting the batteries and so were forced to maneuver constantly, which dramatically worsened their spotting and accuracy. The seaplanes proved next to worthless as they could not fly when the sea was too rough or too calm. When the weather was good, they often were broken. When they did take off, they had to fly so high to avoid Turkish rifle fire that they couldn't make out anything.¹⁵ Without the seaplanes to spot, the Queen Elizabeth's shelling across Gallipoli into the Narrows forts was simply a waste of ammunition. The only way to reduce the Narrows forts was by close direct fire from within the strait and that required the mines to be swept.

The minesweeping effort began on 5 March but bogged down at the Kephez minefield six miles up the strait as the civilian crews of the minesweeping trawlers proved unwilling to face the heavy artillery fire directed at them by the Turks, though it caused no casualties. The lack of minesweeping progress meant the battleships could not advance to eliminate the fire that stymied the minesweepers.¹⁶

London began to lose patience with Carden. On March 14, Churchill cabled to Carden, who seemed to be filling with indecision and doubt:

I do not understand why minesweepers should be interfered with by firing which causes no casualties. Two or three hundred casualties would be a moderate price to pay for sweeping up as far as the Narrows....This work has to be done whatever the loss of ¹life and small craft and the sooner it is done the better.

The next day Carden suffered a nervous breakdown and was relieved by his second in command, Vice Admiral de Robeck, who scheduled an attack for 18 March. The objective remained to secure the five mile stretch

of water below the Narrows. The plan was for the battleships to pound the forts until they were so battered that the minesweepers would be able to clear a channel that evening. The following day, the fleet would pass through into the Sea of Marmara. Meanwhile, Commodore Roger Keyes replaced the civilian trawler crewmen with regular navy volunteers who performed better and cleared many mines though losing many of their sweepers in the process. Their performance convinced Keyes that the operation could continue and succeed.¹⁸

The 13 March attack began at 1130 and by 1345, Turkish fire slackened to almost nothing. Many of the Turkish guns were destroyed or jammed, communications cut, and the gunners thoroughly demoralized. Unknown to the Allies, the Turks were also nearly out of armor piercing shells. Allied casualties were light and damage minor until the French battleship Bouvet turned into Eren Keui Bay, a previously swept area, and exploded and sank with the loss of 639 men. Soon, H.M.S Inflexible hit a mine near where Bouvet sank and was badly damaged. Five minutes later H.M.S. Irresistable also hit a mine in the same vicinity and had to be abandoned.

The area in which the ships struck the mines had been swept several times in the preceding weeks and a seaplane reported the area clear of mines the day before. (Experiments in January indicated that seaplanes could detect submerged mines down to 18 feet in the limpid water of the Aegean.) But in fact, the Turks had laid a row of 20 mines that the British missed. De Robeck mistakenly concluded that the Turks were floating mines down the current and ordered the fleet to retire. Soon, H.M.S. Ocean struck a mine in the same area and was abandoned.

De Robeck feared the day's losses meant his job but apart from the crew of Bouvet, they had suffered only 70 casualties and lost three obsolete ships. Three other battleships were sent to Malta for repairs. The Admiralty wired Carden that four more battleships were being sent out to replace his losses and the French were sending one. Keyes was especially confident that a renewed effort in a few days with a beefed up minesweeping force would succeed. But de Robeck lost confidence in the operation the purely navy phase of the Gallipoli campaign ended.¹⁹

The Tactics--Operations Linkage

The Dardanelles operation failed because of a lack of perseverance, not inadequate tactics, although the disappointing results of some innovative equipment and tactics probably contributed to a demoralization that slowly undermined faith in the operation. The Navy placed great faith in the power of naval gunfire to demolish the enemy guns but it failed to recognize that German success against forts was primarily due to the effects of plunging fire, which the battleships could not duplicate. Hence, the disappointing results they witnessed in the Dardanelles.

They also placed too much faith in the efficacy of the seaplanes for spotting and reconnaissance. The Allies would have fared better without any seaplanes. Since they mistakenly believed that seaplanes could detect submerged mines, they placed credence in the seaplane report that Eren Keui Bay was clear of mines when it wasn't. This further undermined confidence that the Navy could succeed, especially in the minds of on-scene army observers, such as Sir Ian Hamilton but also

perhaps in the mind of de Robeck.²⁰

Despite the disappointments, the Allies were winning at the tactical level although progress was slower than anticipated. Naval fire dominated the shore batteries, slowly destroyed the Turks' command and control network and depleted their ammunition. For all the ordnance expended by the Turks, they scored surprisingly few hits on the ships. Keyes was convinced that once the ships had gotten past the forts, the enemy guns could have been easily destroyed from the vulnerable rear.²¹

Nor were the mines as formidable as they seemed. Their spacing was 90 yards, three times the width of a battleship. Many of them had broken their moorings and floated out to sea. Others had been drug to the bottom where they were harmless. The reconstituted minesweeping force that Keyes assembled manned by crewmembers from the lost battleships was sufficient to sweep what remained. Keyes, (later Admiral of the Fleet Lord Keyes), stated in 1934:

I wish to place on record that I had no doubt then, and have no doubt now--and nothing will ever shake my opinion--that from the 4th of April onwards the fleet could have forced the straits and, with losses trifling compared with those the Army suffered, could have entered the Marmara....²²

Key leaders of the Turkish defenders also believed that the Allies gave up too soon. Turkey's Minister of War during the campaign stated, "If the English had only had the courage to rush more ships through the Dardanelles they could have got to Constantinople."²³

The Allied tactics were sound so why did the de Robeck and the Admirals lose confidence? Churchill probably divined the truth when he said that the Admirals, could not bring themselves to accept the sinking of their ships, even obsolete ones due for scrap. That's why

they abandoned their support for the operation and asked for army assistance.²⁴ The curious thing is that while most states commence an operation without first ascertaining the maximum losses that they are willing to accept, the British first decided on the losses they would accept but then when they lost a fraction of that, decided it was too high a price.

CONCLUSION

As a result of the decision to postpone the naval attack, the Allies suffered 252,000 casualties in a vain attempt to capture the Gallipoli Peninsula in order to clear a path for the Navy. Even if the Navy had lost all of its old battleships and crews to mines, the relative costs of continuing the attack on the Narrows would have been trifling compared to what ensued. But the British leadership, impatient and disturbed by the loss of three Allied battleships, gave up too soon.

The strategic maneuver to capture Constantinople was achievable provided successful maneuver could be achieved at the operational level, which in turn was dependent on success at the tactical level. But because success at the tactical level did not come as rapidly or as unambiguously as they would have liked, the British lost their confidence and seeking easy solutions, scuttled the operation. The lesson to be drawn from this is once an operational commander decides on a sound operation that supports a good strategy and is supportable at the tactical level, and having decided in advance what losses he is willing to absorb to carry out the plan, then he must steel himself and carry it through.

NOTES

¹ Alan Moorehead, Gallipoli (London: Harper & Brothers 1956)
p. 24.

² Moorehead, p. 40.

³ Roger Keyes, The Fight For Gallipoli: From the Naval Memoirs of Admiral of the Fleet Sir Roger Keyes (London: Eyre & Spottiswoode 1941), p. 5.

⁴ Arthur Banks, A Military Atlas of the First World War (New York: Taplinger Publishing 1975), p. 116.

⁵ Banks, p. 115.

⁶ Winston S. Churchill, The Great War (London: George Newnes Limited), p. 534.

⁷ Churchill, p. 534.

⁸ Moorehead, p. 39.

⁹ Wallace P. Franz, "Maneuver: The Dynamic Element of Combat," Military Review, May 1933, p. 6.

¹⁰ Franz, pp. 11-12.

¹¹ From Field Manual 100-5. "Operations." Department of the Army, Washington. D.C., 14 June 1995, p. 7-11.

¹² Great Britain, Dardanelles Commission, Final Report, (London: His Majesty's Stationery Office 1919), p.4.

¹³ The new battleship Queen Elizabeth in the Mediterranean on sea trials would use the operation as an opportunity to calibrate her guns on the Turks. From the Aegean, she could fire 15 inch shells over the Gallipoli peninsula into the Turkish forts. Moorehead, p. 39.

¹⁴ Keyes, p. 20.

¹⁵ Keyes, p. 28.

¹⁶ W.D. Puleston, The Dardanelles Expedition: A Condensed Study, 2nd ed. (Annapolis: United States Naval Institute 1927), p. 44.

¹⁷ Moorehead, p. 59.

¹⁸ Keyes, p. 71.

¹⁹ Lord Wester-Wemyss, Admiral of the Fleet, The Navy in the Dardanelles Campaign (London: Hodder and Stoughton 1924), p. 43.

²⁰ Keyes, p. 54.

²¹ Keyes, p. 17.

²² Keyes, p. 9; Moorehead, p. 91.

²³ Moorehead, p. 95.

²⁴ Churchill, p. 626.

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FIGURE 1

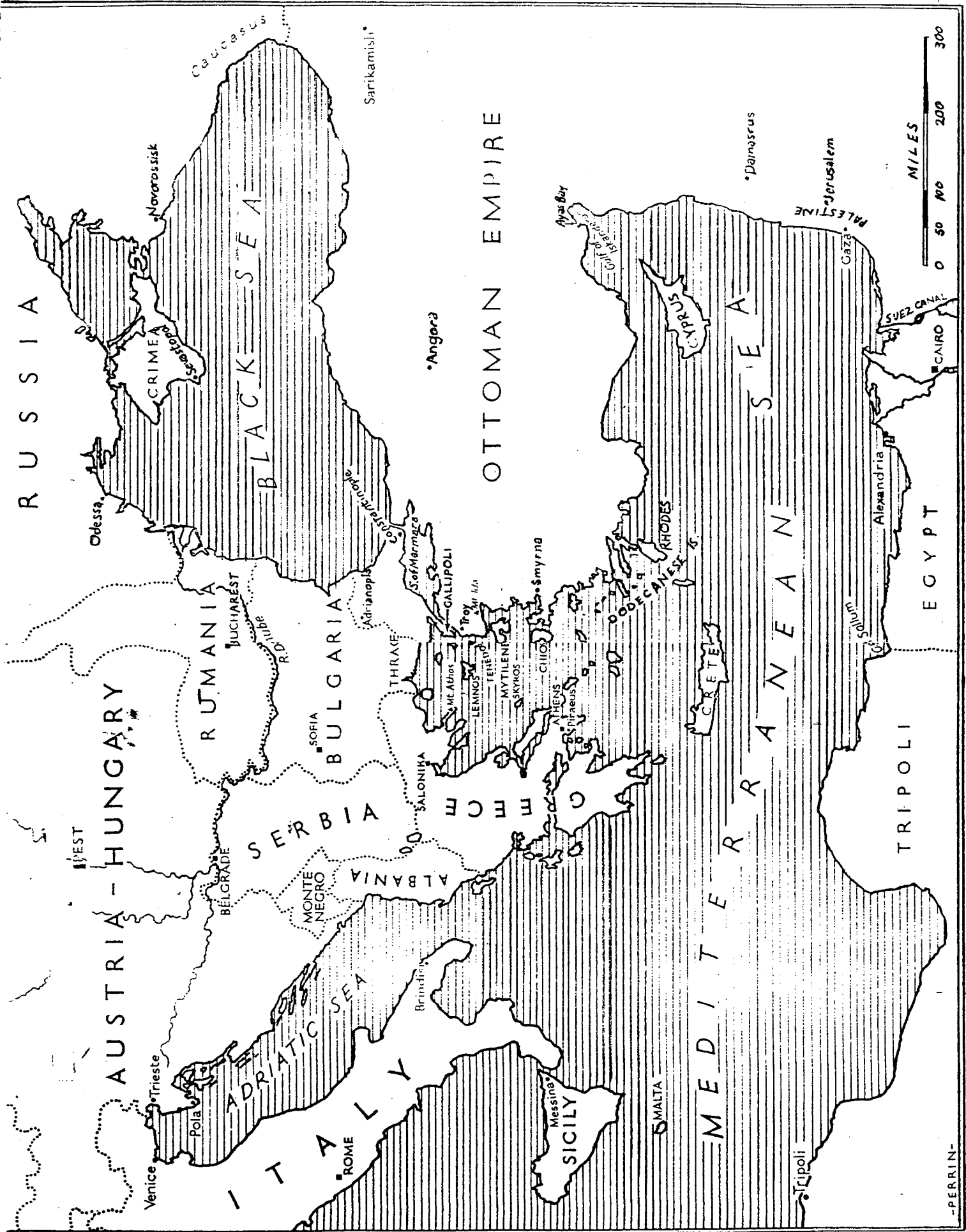
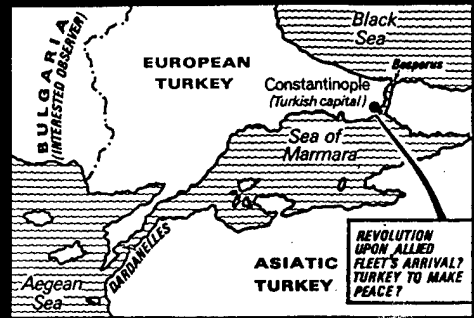


FIGURE 2

TURKISH DEFENCES AT THE DARDANELLES 1915

This map depicts the Turkish defences guarding the Dardanelles prior to the Allied naval attacks during February and March 1915. Following a Russian request to the Western Allies at the end of 1914 for a "second front" to be created against Turkey to ease pressure on the Russian forces in the Caucasus, British naval authorities devised a three-point plan to force the Dardanelles passage. First, a naval bombardment of the entrance forts; secondly, a minefield-clearing operation; thirdly, a naval force to sail right through the Dardanelles to the Sea of Marmara, and thence on to the Turkish capital of Constantinople.

Note: spellings are those used on British maps in 1915. For example, Chanak Kale is used instead of the Turkish name Canakkale. The modern romanized spelling of Turkish was not introduced until 1925; prior to that, Turkish map names were shown in Arabic characters.

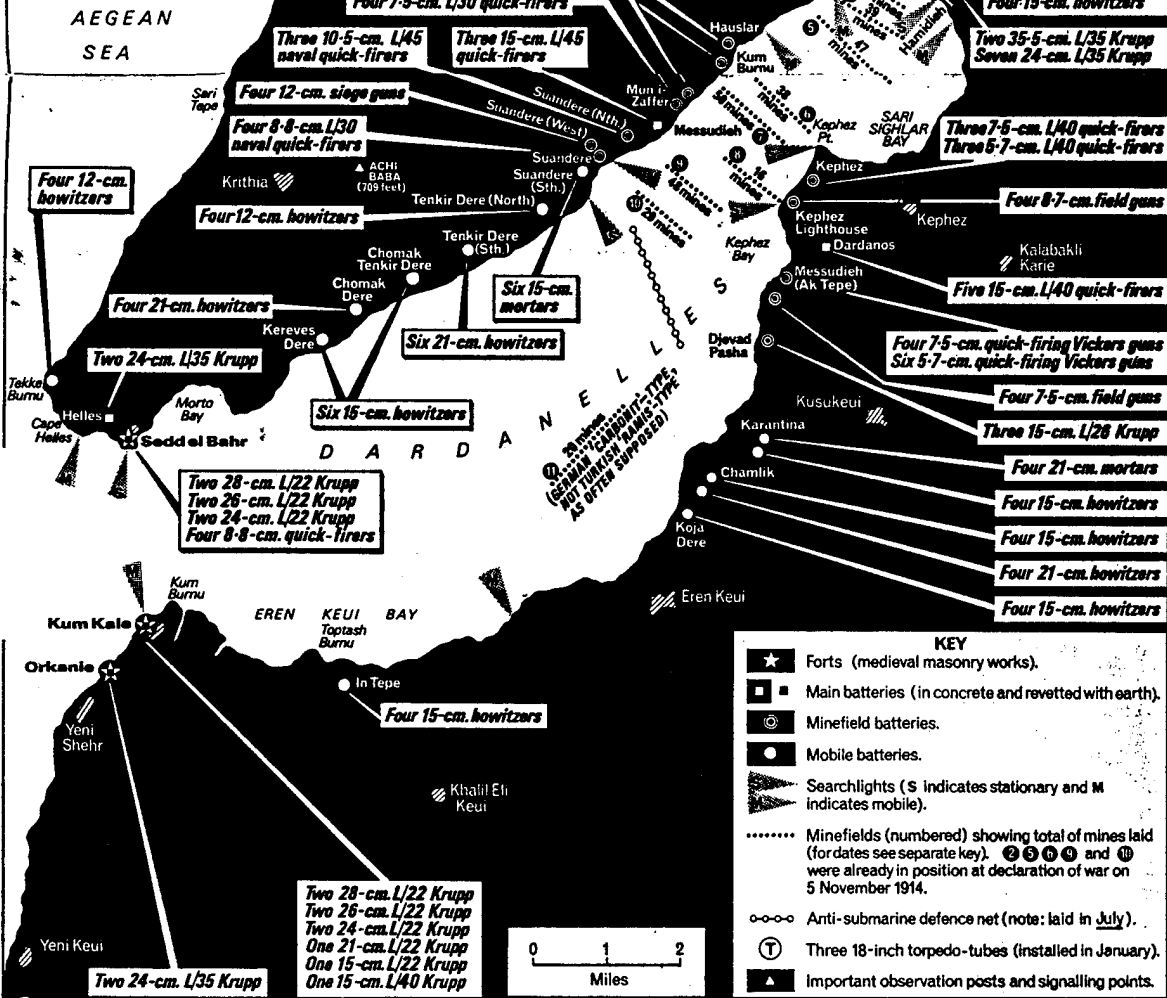


Vice-Admiral Carden, commander of the British squadron in the Aegean, considered that he would require the following units to successfully force the Dardanelles passage: 12 battleships, 3 battlecruisers, 3 light cruisers, 16 destroyers, 6 submarines, 4 seaplanes, 12 minesweepers, and a plentiful supply of ammunition.

KEY TO MINEFIELDS

- ① 26 February 1915.
- ② 5 November 1914 - 19 February 1915.
- ③ 5 November 1914 - 15 February 1915.
- ④ 5 November 1914 - 15 February 1915.
- ⑤ 5 November 1914 - 19 February 1915.
- ⑥ 8 March 1915 (laid by 'Nousret').

Note: The correct name for Achi Baba was Achi Tepe; this was due to a spelling error on British maps, but Achi Baba became the accepted name.



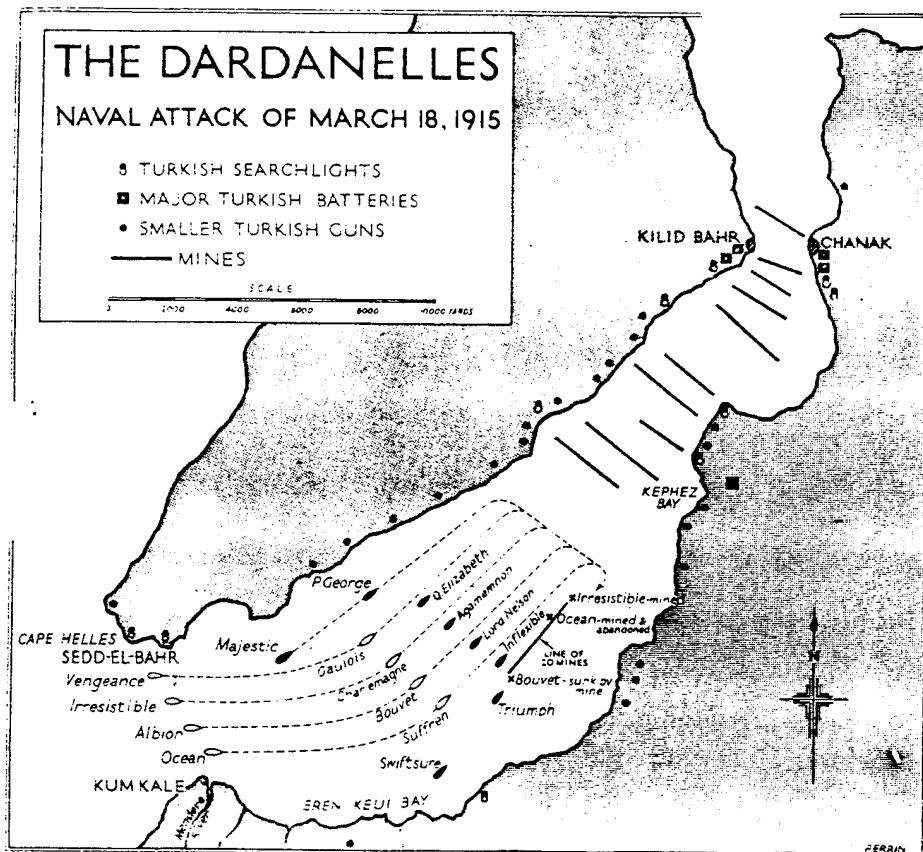
KEY

- ★ Forts (medieval masonry works).
- Main batteries (in concrete and revetted with earth).
- ⊙ Minefield batteries.
- Mobile batteries.
- ⚡ Searchlights (S indicates stationary and M indicates mobile).
- Minefields (numbered) showing total of mines laid (for dates see separate key). ① ② ③ ④ and ⑥ were already in position at declaration of war on 5 November 1914.
- Anti-submarine defence net (note: laid in July).
- Ⓣ Three 18-inch torpedo-tubes (installed in January).
- ▲ Important observation posts and signalling points.

© Arthur Banks 1973

Source: Arthur Banks, A Military Atlas of the First World War

FIGURE 3



Source: Alan Moorehead, Gallipoli