

Losing a war of attrition: realities and perceptions of Axis defeat in the Mediterranean war (1940–3)*

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Abstract

This article presents a new interpretation of the Mediterranean war (1940–3), demonstrating that it was a war of attrition. Historians have tended to present it as a ‘see-saw’ conflict where ascendancy was frequently traded, before the outcome was determined by a ‘turning point’. By interrogating underused Axis source material, this article reveals that such views mask a story of continuity. The economically weaker Axis powers consistently proved unable to replace losses that systematically degraded their military capability. Despite numerous Axis military successes, their political and military leaders consistently, explicitly and rightly perceived themselves to be losing a war of attrition.

Eighty years on, arguments continue to rage over the causes of Allied victory and Axis defeat in the Second World War. This article addresses the interplay between several crucial intertwined themes that regularly feature in these debates: the economic and productive disparity between the two competing coalitions, the importance of the maritime domain, and the destruction of military forces.¹ Comprehensive analysis of the interlinked importance of these themes has been strangely absent from histories of the Mediterranean war (1940–3), and particularly of the integrated maritime war (as defined below). Instead of viewing the Mediterranean war as an example of their importance, some have cleaved to the idea of Axis defeat being the result of one or more ‘turning points’ in mid to late 1942: usually either the arrival at Malta of part of an

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¹ The classic multicausal account of Allied victory, R. Overy, *Why the Allies Won* (London, 1995), for instance, offers dedicated chapters on the importance of the first two of these themes, alongside others, and regularly discusses the third.

important convoy in August (Operation PEDESTAL) or especially the Allied landings in North-West Africa in November (Operation TORCH). They were certainly important moments but artificially isolating them as ‘turning points’ misrepresents both the nature and the outcome of the Mediterranean war. By combining the conceptual framing of ‘attrition’ with multinational source material, this article demonstrates that Axis defeat in the Mediterranean was the result of an incremental process of destruction of their aero-naval forces that overwhelmed their limited production capabilities. This stage had already been reached prior to the supposed ‘turning points’ of 1942, and, significantly, not only can this be seen retrospectively by analysing the conflict through the lens of attrition, but it is also clear that Axis leaders accurately perceived this to be happening at the time. The intervention offered in this article is therefore intended to reposition the Mediterranean within multiple overlapping explanations of overall victory and defeat in the Second World War.

The first of these is the argument that as the war dragged on, ‘economics determined the outcome’.² The second is the centrality of maritime ascendancy to overall success, either as a vital enabler, or as one of the central determinants in and of itself.³ These two explanations are inextricably linked in terms of competing productive capabilities, the deployment of force, and the security of global flows of vital materials required to sustain war industries and populations. They also interlink closely with the third line of argument: that the primary determinant of Axis defeat was the Allied ability to destroy enemy war materiel faster than it could be produced, and that for some, sea and air power were the predominant methods of doing so.⁴

To argue that the economically weaker Axis powers proved highly vulnerable to such cumulative losses is to argue that they were vulnerable to a process of attrition, as per a current widely accepted definition of the term: the ‘grinding down of an opponent’s military strength’.⁵ This ‘grinding down’ can refer to any combination of: the destruction of machines, manpower or broader material ‘resources’ faster than they can be replaced, or possibly to an opponent’s ‘will’ to fight, although this latter factor is sometimes categorized as a distinct but related concept of ‘exhaustion’.⁶ All of these were important and occurred to some extent in the broader Mediterranean war, including attrition to manpower in North Africa and later on Italian soil, or attrition to resources and will via the blockade and bombing of Italy. However, this article argues that, as the disparate elements of the broader Mediterranean war were connected and sustained by maritime links, we must recognize the vital importance of attrition in the maritime war as a central determinant. Given that this was waged at sea by ships, submarines and aircraft, it is the

² M. Harrison, ‘The economics of World War II: an overview’, in *The Economics of World War II: Six Great Powers in Comparison*, ed. M. Harrison (Cambridge, 1998), pp. 1–42, at p. 2. This important collection includes this overview chapter plus six more discussing individual combatant nations. For a more recent discussion of the importance of the overall disparity, see, e.g., R. Overly, *Blood and Ruins: the Great Imperial War, 1931–1945* (London, 2021), pp. 526–66.

³ For recent global histories of the maritime war and its importance, see P. Kennedy, *Victory at Sea: Naval Power and the Transformation of the Global Order in World War II* (London, 2022); E. Mawdsley, *The War for the Seas: a Maritime History of World War II* (London, 2019); C. Symonds, *World War II at Sea: a Global History* (Oxford, 2018); and P. O’Brien, *How the War Was Won: Air-Sea Power and Allied Victory in World War II* (Cambridge, 2015).

⁴ This is the central argument in O’Brien, *How the War Was Won*, who especially disagrees with proponents of the centrality of the Soviet contribution on the ‘eastern front’. By contrast Mawdsley, *War for the Seas*, p. 477; and Symonds, *World War II at Sea*, p. 641, emphasize the importance of sea and air power alongside that of land power.

⁵ A. J. Echevarria II, *Military Strategy: a Very Short Introduction* (Oxford, 2017), pp. 30–1. For similar modern definitions, see L. Milevski, *Grand Strategy Is Attrition: the Logic of Integrating Various Forms of Power in Conflict* (Carlisle, Pa., 2019), p. xiii; J. B. Bartholomees Jr., ‘The issue of attrition’, *Parameters*, xl (2010), 5–19, at p. 9; and C. Malkasian, *A History of Modern Wars of Attrition* (Westport, Conn., 2002), p. 1.

⁶ Echevarria, *Military Strategy*, p. 31, links ‘exhaustion’ solely to the degradation of an enemy’s will to fight. Bartholomees, ‘Attrition’, p. 9, links ‘attrition’ specifically to ‘the destruction of military forces’ and ‘exhaustion’ with ‘a broader range of national capabilities (military forces, economic or industrial power, will etc)’.

destruction of those machines, and the wearing down of broader resources so far as they relate to their construction, that form the primary focus of this article.⁷

Attrition in the Mediterranean theatre occurred rather differently to other theatres of the war. Philips O'Brien has identified three types of 'pre-combat' destruction that were inflicted on the Axis powers alongside destruction in combat: 'pre-production destruction', which involved the denial of the materials, labour and systems for production; the destruction of machines in production (usually by bombing); and the destruction of forces during deployment.⁸ O'Brien's book focuses on the defeat of Germany and Japan, but when analysing the Mediterranean, we see a somewhat different dynamic. The Allied blockade certainly helped exacerbate material shortages for the already resource-poor and import-reliant Italy, alongside shutting more than one-third of the Italian merchant marine outside of the theatre from June 1940 with little hope of return.⁹ However, substantial bombing of Italian ports and production centres truly began only in late 1942, around a similar time to the launching of TORCH, meaning that there were few 'in-production' losses prior to that point.¹⁰ Instead, attrition of Axis aero-naval forces mostly occurred in combat or during deployment.

A 'material destruction' lens of attrition has been applied, either explicitly or implicitly, in numerous theatre-specific studies of the maritime war in both the Atlantic and Pacific. There is now growing consensus that the vast production capabilities of the Allies were crucial in allowing them to survive the threat of attrition from Axis U-Boats to their transatlantic communications.¹¹ Similarly, the yawning disparity between Allied (particularly American) economic might and that of Japan is generally viewed as a crucial factor in Japanese defeat in the maritime war in the Pacific.¹² The recent global studies of the maritime war, too, offer such framings for the Atlantic and Pacific, yet do not use it to explain Axis defeat in the Mediterranean.¹³ So while the relationship between economics and industrial production, battlefield activity and war outcomes has been increasingly integrated into analysis of much of the Second World War at sea, it is lacking from much of the scholarly analysis of the Mediterranean.¹⁴ Here, while historians have

⁷ It is worth noting here that some maritime theorists have argued that while the 'moral' element of attrition may significantly outweigh the 'material' element when it comes to land warfare, following Napoleon's famous '3 to 1' idiom, this ratio is inapplicable to maritime warfare; see W. P. Hughes and R. P. Girrier, *Fleet Tactics and Naval Operations* (3rd edn., Annapolis, Md., 2018), pp. 18–19.

⁸ O'Brien, *How the War Was Won*, pp. 67–94.

⁹ For a summary of Italy's reliance on seaborne imports and the impacts of blockade, see R. Hammond and F. De Ninno, "'No-one wears the fascist badge anymore': blockade, starvation and popular opinion in wartime Sicily and Sardinia, 1940–3", *Journal of Contemporary History*, doi: 10.1177/00220094251414065 (2026), 1–22, at pp. 4–5.

¹⁰ M. Gioannini and G. Massobrio, *L'Italia bombardata. Storia della guerra di distruzione aerea, 1940–1945* (Milan, 2021), appendix, provides a helpful list of bombing raids against Italy. It shows that prior to late 1942, all raids were small in size.

¹¹ See, e.g., M. Milner, *The Battle of the Atlantic* (London, 2003); B. Walter, *The Longest Campaign: Britain's Maritime Struggle in the Atlantic and Northwest Europe, 1939–1945* (Oxford, 2020); and Militärgeschichtliches Forschungsamt (hereafter 'M.F.'), *Germany and the Second World War*, vi (Oxford, 2001), pp. 326–405.

¹² See, e.g., Y. Miwa, *Japan's Economic Planning and Mobilisation in Wartime, 1930–1940s: the Competence of the State* (Cambridge, 2015), pp. 385, 394–438; M. Parillo, *The Japanese Merchant Marine in World War II* (Annapolis, Md., 1993); I. Toll, *The Pacific War Trilogy* (3 vols., New York, 2012–20); and E. Graham, *Japan's Sea Lane Security, 1940–2004: a Matter of Life and Death?* (Abingdon, 2006), pp. 66–9, 77–89.

¹³ O'Brien 'deliberately minimized' the Mediterranean and Italy from his analysis of the importance of air and sea power, on the basis of Italy's lower production power compared to its Axis partners (*How the War Was Won*, p. 15). Kennedy, *Victory at Sea*; Mawdsley, *War for the Seas*; and Symonds, *World War II at Sea*, all offer substantial coverage of the Mediterranean war, but don't integrate economic aspects into explanations of Axis defeat beyond recognizing the impact of oil shortages on the Italian navy. None of these authors apply attrition as a lens for the Mediterranean, although Symonds does briefly characterize the Mediterranean war as one of attrition (*World War II at Sea*, p. 443).

¹⁴ For an exception, see R. Hammond, *Strangling the Axis: the Fight for Control of the Mediterranean During the Second World War* (Cambridge, 2020), although this focuses specifically on the impact of attrition to Axis merchant shipping. J. Gooch, *Mussolini's War: Fascist Italy From Triumph to Collapse, 1935–1943* (London, 2020), does an

recognized the fundamentally integrated nature of war in the theatre, the central role of attrition to Axis aero-naval power as a determinant within this integrated war remains undervalued. One consequence of this has been a persistent trend in arguments that a decisive 'turning point' determined the outcome of the Mediterranean war. These generally point to either or both of PEDESTAL and TORCH as the moment(s) in question.

The argument for PEDESTAL is that the arrival of part of a convoy saved Malta from collapse in August 1942, and thus 'The narrow and costly victory of the "Pedestal" Convoy had turned the tide of the war in the Mediterranean'.¹⁵ In this narrative PEDESTAL either prevented an Axis victory in the theatre at the time of a nadir in Allied fortunes, or specifically enabled a 'decisive' victory for the Allies later in 1942.¹⁶ This leads us to the argument put forward by some, that the Mediterranean war should be viewed as having effectively been a 'draw', until the 'turning point' of TORCH. This viewpoint was initially espoused by serving and retired Italian naval officers and to some extent in the Italian official histories.¹⁷ Marc'Antonio Bragadin argued that TORCH 'completely reversed' the course of the Mediterranean war, while for Admiral Giuseppe Fioravanzo it, along with the subsequent invasion of Sicily, 'represented the decisive turn of the tide'.¹⁸ Vittorio di Sambuy argued that TORCH changed the balance of forces, whereas prior to it, the Mediterranean war was 'match pari' – a draw.¹⁹ This view was brought to academic literature by James Sadkovich over the course of the 1980s–1990s. Despite making some effort to integrate the impact of the productive disparity between the two sides with the war at sea, he still concluded that the period prior to TORCH 'appears to have been a draw'.²⁰ Some have continued to propound this vision in recent years, arguing variously that TORCH either broke a 'stalemate' or entirely reversed the equilibrium in the Mediterranean from one where the Axis had established full 'control' of the theatre beforehand. This was supposedly achieved through tactical successes in 1941–2 'until November 1942, when Anglo-American forces from outside the theatre invaded French North Africa'.²¹

As this article argues, we should instead view Axis defeat in the Mediterranean as having been caused by an ongoing process of attrition. Doing so brings the Mediterranean into line with broader historical coverage of the Second World War, advancing our understanding of concepts

excellent job of integrating economic weakness and wartime losses with the shortcomings of Italy's war, but only briefly touches on it as a causal factor at sea (e.g., pp. 326, 329, 348). Giorgio Rochat (*Le guerre Italiane, 1935–1943. Dall'impero d'Etiopia alla disfatta* (Turin, 2005)) integrates a discussion of the war industry and combat losses versus capacity, but focuses on manpower, artillery, tanks and aircraft (pp. 305–16) and only extremely briefly with the maritime war (pp. 336–7).

¹⁵ N. A. M. Rodger, *The Price of Victory: a Naval History of Britain, 1814–1945* (London, 2024), p. 475.

¹⁶ M. Vigo, 'Major convoy operation to Malta, 10–15 August 1942 (Operation PEDESTAL)', *Naval War College Review*, lxiii (2010), 107–53, at pp. 107, 143; S. Roskill, *The Navy at War, 1939–1945* (1960, repr. London, 1998), p. 237; and P. C. Smith, *Pedestal: the Malta Convoy of August 1942* (London, 1970), p. 186. More broadly, Kennedy, *Victory at Sea*, p. 420, groups PEDESTAL and TORCH together with the battle of Midway as three events in mid to late 1942 that, combined, marked a 'turnaround' in the global maritime war.

¹⁷ In the Italian official naval history series, this point is made in an implicit manner, referring solely to the supply of North Africa, where TORCH transformed the situation into a 'particularly grave' one; see Ufficio Storico della Marina Militare, *La Marina Italiana nella Seconda Guerra Mondiale* (hereafter *L.M.I.*), viii: *La difesa del traffico con l'Africa settentrionale dal ottobre 1942 alla caduta della Tunisia* (Rome, 1964), pp. 8–9.

¹⁸ M. Bragadin, *The Italian Navy in World War II* (Annapolis, Md., 1957), p. 228; and G. Fioravanzo, 'Italian strategy in the Mediterranean, 1940–1943', *United States Naval Institute Proceedings*, lxxxiv (1958), 65–72, at p. 71.

¹⁹ See V. di Sambuy, *Match pari tra due grandi flotte. Mediterraneo, 1940–42* (Milan, 1976).

²⁰ J. Sadkovich, 'Re-evaluating who won the Italo-British naval conflict, 1940–42', *European History Quarterly*, xviii (1988), 455–71, at p. 466; and J. Sadkovich, *The Italian Navy in World War II* (Westport, Conn., 1994), pp. 348–9.

²¹ For the 'stalemate' comment, see V. P. O'Hara, *In Passage Perilous: Malta and the Convoy Battles of June 1942* (Bloomington, Ind., 2013), p. 205; other quotations in V. P. O'Hara, *Six Victories: North Africa, Malta and the Mediterranean Convoy War, November 1941–March 1942* (Annapolis, Md., 2019), pp. 254, 257. B. E. Walter, *Blue Water War: the Maritime Struggle in the Mediterranean and Middle East, 1940–1945* (Oxford, 2022), p. 136, offers a slightly more nuanced version of this, arguing that Allied fortunes had begun to rebound before TORCH, but that the events of November still fundamentally 'change[d] the entire course of the campaign'.

of victory and defeat in the wider war. It is time that the Mediterranean caught up, given its importance to the wider war and to the shaping of the postwar world.²²

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This article focuses on the Mediterranean war as a maritime war, connecting the war at sea with the littorals surrounding it. 'Maritime' here is used in the sense described by the influential theorist Julian Corbett, meaning something that is seen as fundamentally 'joint': rather than a separate 'naval' conflict, it was integrated with the wars on land and (although not present in Corbett's pre-1914 book) in the air.²³ Events at sea in the Mediterranean fundamentally influenced the progress of, for instance, the course of the war in North Africa as control of supply routes waxed and waned for each side. Meanwhile, the course of the war in North Africa influenced that at sea through, for instance, the control (or loss) of crucial ports and airfields based there. Historians have generally recognized the fundamentally interconnected nature of the Mediterranean war, which was after all 'one of, if not the, most operationally "joint" theatres of the war'.²⁴ This maritime war was a central element of the first of what Simon Ball has characterized as four interrelated 'parallel Mediterranean wars' that took place: the campaigns fought in the theatre; the war for the Mediterranean littoral; the war for passage through the Mediterranean; and the war to escape it.²⁵ No combatant nation involved in the wartime Mediterranean had aims that neatly fit into just one of these categorizations, and each influenced the importance of the others, but the maritime war acted as a crucial connecting element, as controlling or at least contesting the Mediterranean waters and the skies above them would not just be essential for successful war in the theatre, but also to the war for it, through it and to escape it. Without the ships, aircraft and submarines to prosecute it and to supply the disparate parts of the theatre, waging a Mediterranean-wide conflict would become impossible. Success in the maritime war was therefore fundamental to wider victory in the war in the Mediterranean and indeed to the other 'parallel Mediterranean wars', and it was primarily determined, particularly after 1940, by a process of attrition.

It has taken some time to settle on the modern definition of attrition, however, as the meaning of the term has evolved substantially over time. Prior to the First World War, the influential Berlin-based Professor Hans Delbrück popularized the argument that strategy could take one of two forms: *Ermattungsstrategie* (commonly translated as an 'attrition' or 'exhaustion' strategy) or *Niederwerfungsstrategie* (commonly translated as 'annihilation'). He argued that attrition involved exhausting the will of an enemy's political leaders via the pursuit of a longer war and as an alternative to seeking 'decisive' battle. Instead, battle was 'one means that can be chosen from among several' and could frequently be avoided through manoeuvre. It was a strategy suited to a weaker power, designed to prevent their stronger opponent(s) from bringing their strength to bear, although it required the economic ability to sustain its prosecution.²⁶ Yet the experience of

²² For the course of the Mediterranean war influencing the post-war power dynamics in the region, see S. Ball, *The Bitter Sea: the Brutal World War II Fight for the Mediterranean* (London, 2010). On wartime importance and the potential ramifications of Axis victory in the Mediterranean, see, e.g., D. Porch, *The Path to Victory: the Mediterranean Theatre in World War II* (New York, 2004), pp. 6–7, 26–7, 662–82; G. Weinberg, *A World at Arms: a Global History of World War II* (2nd edn., Cambridge, 2005), pp. 171–2, 213, 350–1; and R. Ehlers, *The Mediterranean Air War: Airpower and Allied Victory in World War II* (Lawrence, Kan., 2015), pp. 402–4.

²³ The 'integrated' conception of 'maritime' war is present throughout Corbett's classic book (J. S. Corbett, *Some Principles of Maritime Strategy* (London, 1911)).

²⁴ Hammond, *Strangling the Axis*, p. 199.

²⁵ S. Ball, 'The Mediterranean and North Africa, 1940–1944', in *The Cambridge History of the Second World War*, ed. J. Ferris and E. Mawdsley (3 vols., Cambridge, 2015), i. 358–88, at p. 358.

²⁶ H. Delbrück, *History of the Art of War Within the Framework of Political History*, iv: *The Modern Era* (Westport, Conn., 1985), pp. 108–9, 294, 296. Delbrück was not necessarily the first to identify a bi-pole approach; see G. Rothenburg, 'Maurice of Nassau, Gustavus Adolphus, Raimondo Montecuccoli and the "military revolution" of the seventeenth century', in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. P. Paret (Princeton, 1986), pp. 32–63, at p. 57.

the 'total wars' of the first half of the twentieth century transformed the meaning of the term, albeit via a sometimes convoluted route.²⁷ Instead, it came to encapsulate exhausting one's enemy through the pursuit of combat and the destruction of men and materiel, and so by 'the second half of the twentieth century had become associated with economic strength, not weakness'.²⁸

By the time of the Second World War use of the term was closely linked to the question of destruction versus production of materiel, but this included nuances. Thus, when a British chiefs of staff appreciation from September 1940 urged 'that our strategy during 1941 must be one of attrition', the term was being used in its broadest sense.²⁹ It advocated blockade, strategic bombing, other forms of resource denial and the taking of Italian colonies in Africa. Yet in May 1942 American president Franklin Roosevelt used it while calling for something more specified: 'Combat against Japanese ships and planes ... in order to hasten the attrition of Japanese arms'. This meant the 'destruction or damage of a much larger number of Japanese ships and planes each month than they can replace'.³⁰ This was echoed by Winston Churchill the following year, when he told the house of commons that the destruction of Japanese air and naval assets meant that 'a steady process of attrition is at work, and the strength of the enemy must be considered a wasting asset'.³¹ This partial difference in usage can partly be explained through evolution in use of the term during wartime and partly through its use at different 'levels' of war: strategic and operational.

This 'strategic' attrition alluded to by the chiefs of staff in 1940 is akin to one modern definition of 'exhaustion': the degradation of a wide range of national capabilities and of popular 'morale'. Roosevelt and Churchill were commenting on something more like what would now be considered operational approaches: the destruction of enemy forces faster than they could be replaced as per a common modern definition of 'attrition'.³² The maritime war in the Mediterranean came to be viewed through this prism by military and political leaders from 1941 onwards and it was precisely the sort of war that those from the economically weaker Axis powers feared.

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Concepts of attrition loomed large in the minds of war planners of all nationalities as the Second World War approached. Both British and French planners envisioned, at least initially, a longer war of strategic attrition, leveraging their economic, manpower and naval advantages, as a realistic prospect for defeating Germany. As a French staff study in February 1938 opined, 'We cannot defeat Germany rapidly and that only a prior attrition of its strength ... will prepare the final victories'.³³ Although proper joint Anglo-French staff conversations were rather late in

²⁷ For an excellent study of the convoluted and at times contradictory way in which it was used by senior British political and military figures during the First World War, see D. French, 'The meaning of attrition, 1914–1916', *English Historical Review*, ciii (1988), 385–405.

²⁸ H. Strachan, *The Direction of War: Contemporary Strategy in Historical Perspective* (Cambridge, 2013), p. 138.

²⁹ The National Archives of the U.K., CAB 66/11/42, WP(40) 362, 'Future strategy', 4 Sept. 1940, p. 6.

³⁰ Quoted in O'Brien, *How the War Was Won*, p. 138.

³¹ Hansard, *Parliamentary Debates*, 5th ser., Commons, cccxcii (21 Sept. 1943), cols. 78–9. A very similar view was expressed by William Waldorf Astor in another debate six months earlier (Hansard, 5, Commons, ccclxxxvi (11 Feb. 1943), cols 1526–7).

³² This distinction between exhaustion and attrition is essentially the one outlined in Bartholomees, 'Attrition', p. 9.

³³ Quoted in T. Imlay, *Facing the Second World War: Strategy, Politics, and Economics in Britain and France, 1938–1940* (Oxford, 2003), p. 27. As Imlay notes, however (p. 66), there were concerns among French planners that in the event of war against a German-Soviet alliance, they would be more likely to be the victims of a long attritional war than the successful prosecutors of one. Scepticism over a 'long war' strategy also increased after difficulties in blockading Germany soon became apparent in wartime. See also R. Salerno, *Vital Crossroads: Mediterranean Origins of the Second World War, 1935–1940* (Ithaca, 2002), p. 169.

commencing, they confirmed much the same views.³⁴ For the European Axis powers, a long attritional war was something to avoid at all costs, given their disadvantages in terms of economics, naval strength and access to key resources. Ideally, they would need a short, sharp war or, at the very least, substantially more time to strengthen their industries and military forces before embarking on a conflict. The 1939 Italo-German alliance (the 'Pact of Steel') specified no dates, but the Italians seem to have interpreted an agreement from the negotiations that there should be no war with a major power until at least 1942.³⁵ That same year, Benito Mussolini told the German foreign minister directly that Italy would not be ready for such a war until 1943, while, during a visit to Rome in April, German Air Marshal Herman Göring intimated a preference for no war until 1942–3.³⁶ For their part, neither of the Axis navies seemed to be planning for imminent war in 1939 either. The German naval wargame that year was based around conflict taking place in 1942–3, while the head of the Italian navy, Domenico Cavagnari, argued that the most favourable time for war from a naval perspective would probably be between autumn 1940 and summer 1941.³⁷

With regard to the Mediterranean, war planners from key nations all focused on the central importance of sea communications, and concepts of attrition linked heavily into these visions. The Allied powers had long recognized the relative economic weakness of Italy and identified their vulnerable reliance on overseas imports for vital raw materials. The expectation was that thanks to control of the Mediterranean entrances, an effective blockade of these vital imports could be implemented with relative ease.³⁸ It was also the precise concern of numerous Italian ministers and senior servicemen.³⁹ Mussolini himself directly linked these concerns to a strategic-level concept of attrition when he warned Cavagnari in 1939 that

the war that the great democracies are preparing for is a war of economic attrition [guerra di usura]. One must therefore start from the hardest hypothesis, which is one hundred per cent possible. The Axis will not receive anything from the rest of the world. This hypothesis would be serious, but the strategic positions gained by the Axis greatly reduce the severity and danger.⁴⁰

He was not alone in doing so. A few months later the Italian consul general to Geneva reported to Rome that Britain and France felt that their resource superiority over Germany could grant them victory, but only 'if they hold firm in a war of siege and of attrition [logoramento]'.⁴¹

³⁴ See T.N.A., CAB 16/209, Anglo-French staff conversations, 1939, British strategical memorandum, 14 March 1939; and Anglo-French staff conversations, 1939, United Kingdom delegation, Report on Stage 1, 11 Apr. 1939.

³⁵ Z. Steiner, *The Triumph of the Dark: European International History, 1933–1939* (Oxford, 2011), p. 849.

³⁶ Gooch, *Mussolini's War*, p. 59; and Pignatti to Ciano, nota edizione, 17 Apr. 1939, in *I documenti diplomatici italiani* (hereafter *D.D.I.*), 8th ser., xi, 652.

³⁷ G. Schreiber, *Revisionismus und weltmachtstreben. Marineführung und deutsch-italienische Beziehungen 1919 bis 1944* (Stuttgart, 1978), pp. 177–8; and Rome, Archivio dell'Ufficio storico della Marina Militare (hereafter 'A.U.S.M. M.'), DG-O, A, busta 1, Cavagnari memo 'Necessità di accelerare l'esecuzione delle nostre nuove costruzioni navali in relazione alla influenza di esse sullo schieramento e sulla situazione delle forze avversarie in Mediterraneo', 1 July 1939, pp. 3–4.

³⁸ For an early example of such thinking, see T.N.A., ADM 1/8739/47, 'The possibilities of the exercise of maritime economic pressure upon Italy', part I, March 1931, pp. 3, 5, 7, 13.

³⁹ See, e.g., Naval Plans Office, 'Esame del problema strategico in caso di conflitto, nella attuale situazione politica', 20 Aug. 1939, in *Corrispondenza e direttive tecnico-operative di Supermarina*, ed. F. Mattesini (Rome, 2000), i, pt. 1, p. 139; J. Gooch, *Mussolini and His Generals: the Armed Forces and Fascist Foreign Policy, 1922–1940* (Cambridge, 2007), pp. 202, 397, 505.

⁴⁰ Mussolini to Cavagnari, 27 May 1939, in Mattesini, *Supermarina*, i, pt. 1, p. 66 (emphasis in original). The 'strategic positions' appear to refer to German expansion in Central Europe, the Italian annexation of Albania and the favourable stances of Romania, Hungary and Bulgaria.

⁴¹ Bova Scoppa to Ciano, 28 Sept. 1939, in *D.D.I.*, 9th ser., i (Rome, 1954), p. 293. The terms 'usura' and 'logoramento' often appear to be used interchangeably throughout the source material. The fascist-era *Enciclopedia militare* offers a definition only of the latter, which refers to the wearing down of an enemy through combat with 'methodical continuity'. See the 'Logoramento' entry in *Enciclopedia militare*, iv (Milan, 1932).

Attrition featured just as much in operational-level planning, although there were differing national perspectives as to how. Admiral Dudley Pound, pre-war commander-in-chief of the Royal Navy's Mediterranean Fleet, felt that 'Attrition of enemy forces as an object by itself is unsatisfactory, and the policy to be followed must be laid down with some object in view'. The main offensive object in his mind was the interruption of enemy sea communications, a view that would continue into wartime. He was also concerned about the potential for the Italians to use local superiority (especially in air power and submarines) to inflict 'a steady attrition of our forces'.⁴² This concern was well founded, as it resembled the approach developed by Italian planners, who recognized that the geography of opposing bases and composition of opposing forces meant that they could really aim to deploy superior forces only in the central Mediterranean. Even then, attrition would first have to be inflicted on enemy forces in the eastern and western basins to weaken them. The Naval Plans Office determined in 1939 that the navy's first 'general concept of action' would be a 'war of attrition [guerra di logoramento] with a defensive stance in the west and east, and an offensive and counter-offensive stance in the centre'.⁴³ This was restated in the navy's revised war plans that were circulated just prior to the Italian declaration of war, and emphasized attrition of the enemy using light warships, special forces, submarines and aircraft. The main battlefleet was only then to engage, from a position of numerical equality or ideally superiority, from which they hoped to inflict a decisive blow.⁴⁴

Operationally, then, in the late pre-war period 'attrition' initially meant different things to the two powers who would become the main combatants in the Mediterranean over 1940–3. There was little appetite among the British to pursue it as a dedicated approach, and concern about becoming a victim of it. For the Italians it was something to be pursued solely as a precursor, to engineer the circumstances required for a 'decisive' battle at sea. It was not something to be pursued as an end in itself, as Italy lacked the productive means to replace the losses that they would probably suffer in doing so. As Cavagnari warned, naval losses could be replaced only 'laboriously', at a much slower rate than their enemies were capable of.⁴⁵ By contrast, by the late 1930s the French favoured ignoring operational attrition and adopting a hyper-aggressive approach to naval war with Italy, although this was moot given that Italy's declaration of war came when the French armistice was looming.⁴⁶ German plans, meanwhile, were simply to avoid the Mediterranean entirely. Focusing on continental Europe, they hoped that Italian belligerency (or even just benevolent neutrality) would serve to divert Anglo-French forces to the

⁴² T.N.A., ADM 116/3900, 'The strategical aspect of the situation in the Mediterranean on 1st October 1938', 14 Nov. 1938, pp. 1–2; and T.N.A., ADM 116/3900, Pound to Admiralty, 10 May 1939, pp. 1–2. There was a generalized overestimation of the maritime capabilities of the Italian air force by the British prior to war; see R. Hammond, 'An enduring influence on imperial defence and grand strategy: British perceptions of the Italian navy, 1935–1943', *International History Review*, xxxix (2017), 810–35.

⁴³ Naval Plans Office, 'Esame del problema strategico in caso di conflitto, nella attuale situazione politica', 20 Aug. 1939, in Mattesini, *Supermarina*, i, pt. 1, p. 140. For a longer discussion of how this concept developed over the pre-war years, see F. De Ninno, 'Continental naval doctrines between the wars: the impact of German naval experience on the Italian navy (1919–1943)', *War in History*, xxix (2022), 602–21.

⁴⁴ A.U.S.M.M., Direttive generali operative, Di.Na 0 – 'Concetti generali di azione in Mediterraneo nella ipotesi di conflitto Alfa Uno', 29 May 1940, pp. 2, 4–5; and A.U.S.M.M., Direttive generali operative, Di.Na 1 – 'Direttive per le operazioni iniziali delle forze navali principali', 29 May 1940, p. 4. These principles were broadly restated again in mid July, after Italy had been at war for just over a month (A.U.S.M.M., Direttive generali operative, Direttive Di. Na. 0 – 'Concetti generali d'azione in Mediterraneo nell'attuale fase di conflitto', 14 July 1940, pp. 3–4).

⁴⁵ A. Santoni and F. Mattesini, *La partecipazione tedesca alla guerra aeronavale nel Mediterraneo (1940–1945)* (Rome, 1980), pp. 20–2.

⁴⁶ R. M. Salerno, 'Naval strategy and the origins of the Second World War in the Mediterranean, 1938–1940', in *New Interpretations in Naval History: Selected Papers From the Thirteenth Naval History Symposium*, ed. W. M. McBride and E. P. Reed (Annapolis, Md., 1998), pp. 162, 167, 170; and M. Thomas, 'At the heart of things? French imperial defense planning in the late 1930s', *French Historical Studies*, xxi (1998), 325–61 at pp. 344, 348, 353.

Mediterranean and ease their own plans.⁴⁷ This dovetailed neatly with Mussolini's own aim for a short 'parallel war', and it was only the frustration of that war and related concerns that Italy might sue for a separate peace and/or Britain might gain the opportunity to base heavy bombers in Greece to threaten the Romanian oilfields, that later drew Germany south.⁴⁸

Italy's parallel war was slow to begin and soon suffered serious reverses in Greece and Egypt, prompting German intervention at the end of the year. At sea, though, they could point to some achievements. Most notably, they successfully delivered almost all supplies that they despatched to Libya, Albania and the islands, despite the lack of a properly organized convoy system. They also inflicted serious losses on those British submarines used in the few derisory interdiction efforts that were made in the early stages of the war.⁴⁹ However they had inflicted few losses to the Mediterranean fleet and suffered a greater number themselves. Most famously, three Italian battleships were seriously damaged in an air raid on Taranto in November. Although two would return to service the next year, one was rendered permanently out of action.⁵⁰ The strike on Taranto did not 'knock out' the Italian fleet, which continued to operate and exercise influence on British operations and force distribution into 1943.⁵¹ Its offensive capabilities were impeded, though, and this was exacerbated by the loss of three heavy cruisers off Cape Matapan the following March.

These losses undermined a key operating condition for their offensive aims: the ability to engage from a position of superiority. Italy had lost or suffered serious damage to several large warships, which they could produce only at a slow rate. Meanwhile, the invasions of Egypt and Greece had necessitated an intensification of shipping traffic to supply these campaigns, alongside the ongoing supply needs of island territories and shipping for domestic purposes. This would force them 'to gradually increase the magnitude of an escort service ... to the detriment of other military tasks'.⁵² The Italian naval high command (Supermarina) still clung to the hope of engaging the Royal Navy in a position of superiority but recognized that this had become even harder to achieve. Any success against them 'would have enormous moral repercussions, but relatively limited material effects' given their superior ability to replace losses, whereas 'a failure of the Italian naval forces would have the most serious repercussions on the operational situation in the terrestrial and overseas fronts'.⁵³

One impact of attrition on the Axis maritime war had thus already begun to manifest, as they were forced to concentrate on one key role in the Mediterranean. From early 1941 the maritime war became an attritional conflict centred around sea communications. As the British chief of the imperial general staff put it, 'For the Air Force and Navy, the primary desiderata are to cut the

⁴⁷ Schreiber, 'Italy and the Mediterranean in the power political calculations of German naval leaders, 1919–45', in *Naval Strategy and Policy in the Mediterranean: Past, Present and Future*, ed. J. B. Hattendorf (Abingdon, 2000), pp. 117–18, 121–4.

⁴⁸ For a succinct summary of these concerns, see G. L. Weinberg, 'German strategy, 1939–1945', in Ferris and Mawdsley, *Cambridge History of the Second World War*, Vol. I, pp. 107–31, at pp. 118–19.

⁴⁹ Hammond, *Strangling the Axis*, pp. 16–19, 44–51.

⁵⁰ Efforts to repair the *Cavour* continued periodically into 1943, however, leading some to be highly critical of a wasteful use of precious labour and materials. See, e.g., G. Giorgerini, 'Le costruzioni navali Italiane nel periodo bellico con specifico riferimento al 1942', in *L'Italia in guerra. Il 3° anno–1942*, ed. R. H. Rainero and A. Biagini (Rome, 1993), pp. 377–90 at pp. 384–5.

⁵¹ On continued influence, see Hammond, 'Enduring influence', pp. 824–8.

⁵² 'Apprezamento della situazione', 30 Dec. 1940, in Mattesini, *Supermarina*, i, pt. 2, pp. 1047, 1050; and A.U.S.M. M., *Supermarina*, *Supermarina-Omologazioni danni nemico*, b. 7, *Economia bellica e linea di traffico*, 11 Dec. 1940, pp. 1–2.

⁵³ A.U.S.M.M., *Supermarina*, *Supermarina-Omologazioni danni nemico*, b. 7, *Economia bellica e linea di traffico*, 11 Dec. 1940, pp. 6–7, 10–11, 13–14. See also 'Promemoria per il Capo di Stato Maggiore apprezzamento della situazione', 30 Dec. 1940, in *L.M.L.*, iv: *Le azioni navali tomo 1: Dal 10 giugno 1940 al 31 marzo 1941* (Rome, 1959), pp. 514–15. These difficulties were exacerbated further by the dwindling stocks of fuel and key materials needed for new construction and repair and the transfer of more escort vessels to convoy escort rather than fleet duties.

[enemy] communications to Libya' and elsewhere.⁵⁴ Concerns over the security of shipping to North Africa featured highly on the minds of both senior Italian and German commanders. Offensive operations had not been abandoned, but they too were themed around communications. As one Supermarina appreciation put it in May 1941, 'In the coming months the task of our Navy will mainly be to ensure the passage of our convoys to Libya and conversely to oppose that of the British convoys in the Mediterranean'.⁵⁵ Although this conflict saw ebb and flow over the next two years, with success and setback for both sides, one consistency was that the Axis powers could not sustain the ongoing attrition of their aero-naval assets. Even when they were seemingly 'winning' the Mediterranean war, key Axis leaders perceived that they were actually losing a war of attrition.

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Alongside important qualitative evidence, statistics are central to making this argument. Given that a multitude of (sometimes contradictory) statistics exist across different sources concerning Axis losses, it is worth briefly discussing them. Determining Axis warship losses is a relatively simple task. The Italian naval official history series, *La Marina Italiana nella Seconda Guerra Mondiale (L.M.I.)*, despite its age and some limitations, remains essential for understanding the Mediterranean war. Volume 2, *Navi militari perdute*, provides a list of warship losses with details of date, context and cause. The original edition (1951) was found to have numerous errors, but these were gradually corrected through to a fifth edition (1975).⁵⁶ This forms the main source for Italian warship losses, although they have been double-checked against other works to ensure accuracy.⁵⁷ For German U-boat losses, a convenient list is provided by Paterson, but each loss has been verified by cross-referencing from other sources.⁵⁸

Determining Axis mercantile losses is a more complicated task. Volume 1 of *L.M.I. (Dati statistici)* contains a set of tables, entitled 'Perdite del naviglio mercantile secondo la causa', that cover Axis shipping losses, 1940–3, broken down by month/year and cause. Ostensibly, they claim to include the losses of all Italian-flagged merchant ships anywhere during the war, and all German-flagged vessels lost within the Mediterranean theatre. The problem is that they demonstrably do not, having numerous errors and omissions that were not rectified by the publication of a second edition.⁵⁹ An example of obvious omissions is September 1941, where it is claimed that just two ships totalling 4,202 tons were sunk by submarine that month out of a

⁵⁴ T.N.A., CAB 79/55, COS(41), 15th 'O' meeting, 27 May 1941, annex 2: J. G. Dill, 'Short appreciation on the situation in the Middle East as I see it'.

⁵⁵ Promemoria no. 106 di Supermarina: 'Progetto di difesa aeronavale attività del Canale di Sicilia', 24 May 1941, in *Diario Storico del Comando Supremo*, ed. A. Biagini and F. Frattolillo (hereafter *D.S.C.S.*), iv, pt. 2, p. 30. For concerns of senior German commanders, see, for example, Wilhelm Keitel's comments in Shrivenham, Joint Services Command and Staff College Archive (hereafter 'J.S.C.S.C.'), Air Historical Branch Translations, vol. 9, translation no. VII/81, Keitel to C-in-C Army, 20 May 1941; and 'Stralcio dei verbale dei colloqui intercorsi tra l'Eccellenza Cavallero e il Maresciallo Keitel durante la visita in Germania della missione Italiana', 25 Aug. 1941, in *D.S.C.S.*, v, pt. 2, p. 3.

⁵⁶ See *L.M.I.*, ii: *Navi militari perdute* (Rome, 1975).

⁵⁷ Other sources consulted include Bragadin, *Italian Navy*; and J. Röhwer, *Allied Submarine Attacks of World War Two: European Theatre of Operations, 1939–1945* (London, 1997), pp. 125–224.

⁵⁸ L. Paterson, *U-boats in the Mediterranean, 1941–1944* (London, 2007), pp. 186–7, cross-checked with G. Hessler / Ministry of Defence (Navy), *The U-boat War in the Atlantic, 1939–1945* (London, 1989), pp. 119–26 and by using 'List of all boats in the Mediterrean [sic]', *uboat.net* <<https://uboat.net/ops/med-all.htm>> [accessed 29 July 2026]. Paterson appears to have listed U-374 twice. Minor and auxiliary warships are excluded, including the few German surface warship losses in the theatre. German surface vessels in the Mediterranean prior to the Italian armistice were almost all minor vessels. The only exception was a seized Greek destroyer (renamed *Hermes*) that was scuttled in May 1943.

⁵⁹ The table in question can be found in *L.M.I.*, i: *Dati statistici* (Rome, 1950), table LXXXc, pp. 212–13. A second edition was published in 1972, yet the problematic figures in these tables remain unchanged; see *L.M.I.*, i: *Dati statistici* (Rome, 1972), table LXXVib, pp. 232–3. *L.M.I.*, iii: *Navi mercantili perdute*, does contain some of those ships evidently missing from *Dati statistici*, but it still retains demonstrable errors and omissions.

total of only eleven vessels of 41,868 tons lost by any cause. This figure is evidently a long way short of reality, given that two liners (*Neptunia* and *Oceania*) totalling a combined 39,000 tons, were famously sunk by submarine on a single day that month. These are merely the most notable omissions though, as numerous other ships are clearly missing. These omissions can largely be uncovered by using an extensive 1955 study, which compared Axis merchant ship loss data from across Lloyd's lists of shipping losses, the early editions of *L.M.I.* and Axis war diaries. This gives more broadly sourced figures that offer greater accuracy, although later research by Jürgen Röhwer has allowed some revisions to it.⁶⁰

Finally, there is the tricky question of Axis aircraft losses. It may be impossible to separate out those aircraft lost specifically in maritime operations from those in other roles. Instead, total losses and available numbers of Italian aircraft will be given. For German aircraft, patchy and inconsistent source material sometimes makes determining precise forces available and losses in the Mediterranean difficult. However, Gundelach's classic study provides important details of available strengths.⁶¹ Using these sources, alongside other material, this article will demonstrate that attrition was the key factor in Axis defeat and that the losses they suffered had pushed them past an irreversible point prior to TORCH.

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The usually advanced story of the Mediterranean war between early 1941 and Operation TORCH is that of a 'see-saw' conflict, where the two sides traded positions of ascendancy. On one level that view is accurate, but it also masks the continual, unsustainable process of attrition to the Axis powers beyond their limited ability to cope. This process was something that Axis leaders clearly recognized and tried, unsuccessfully, to address. In early to mid 1941 the Axis powers could arguably claim ascendancy. The period saw them defeat Greece, eject the British expeditionary force there from the continent and inflict serious losses on the Royal Navy during the subsequent evacuation. They also began the first genuinely sustained intense bombing of Malta, as German air power supplemented Italian efforts.⁶² This in turn aided a successful reinforcement of their position in North Africa, and the subsequent Italo-German offensive pushed right up to the Egyptian border. Yet even at this early stage and despite these successes, there is much evidence of serious concerns that attrition was already proving unsustainable.

In a high-level meeting in April 1941 Admiral Riccardi, who had replaced Cavagnari as chief of the Italian navy, complained that his service had been 'subjected to such attrition [logorio] that a reduction in activity is necessary'.⁶³ At an Italo-German conference the following month, Italian representatives expressed concerns over offering concessions to Vichy on naval rearmament at a time when 'the Italian navy is wearing itself out in the ongoing war' and suffering 'continuous attrition'.⁶⁴ Replacing even quite modest losses was proving challenging due to shortages in key materials and inefficiencies in the construction process. Work on larger warships such as the battleship *Impero* had to be suspended or deprioritized in favour of smaller escort vessels that were quicker to build and crucial to the ongoing convoy war. An additional construction programme (the '1942 programme') was devised to build up escort forces. Yet by July Riccardi

⁶⁰ See T.N.A., AIR 20/9598, 'Enemy shipping losses in the Mediterranean: 10th June 1940 to 2nd May 1945', with its source base set out in the introductory notes of the file; and Röhwer, *Allied Submarine Attacks*, pp. 125–224.

⁶¹ See K. Gundelach, *Die Deutsche Luftwaffe in Mittelmeer, 1940–1945* (2 vols., Frankfurt, 1981). For a discussion of the (often piecemeal) availability of source material on the Luftwaffe and comparative loss statistics, see D. Zamansky, 'How were German air force resources distributed between different fronts in the years 1941 to 1943 and what are the implications of this case study for understanding the political economy of the period?', pp. 36, 44–51 <<https://www.wv2.dk/Dan%20Zamansky%20-%20The%20Study.pdf>> [accessed 29 July 2026]. See also W. Murray, *Strategy for Defeat: the Luftwaffe, 1933–1945* (Maxwell, Ala., 1983).

⁶² For the impact on Malta, see D. Austin, *Malta and British Strategic Policy, 1925–1943* (London, 2004), pp. 113–18.

⁶³ Minutes of meeting of 27 Apr. 1941, in *Verballi delle riunioni tenute dal Capo di Stato Maggiore Generale*, ed. A. Biagini and F. Frattolillo (4 vols., Rome, 1983; hereafter V.C.S.M.G.), ii. 51.

⁶⁴ Liberati to Pietromarchi, 19 May 1941, Allegato II: 'Convegno di Merano', in *D.D.I.*, 9th ser., vii. 140, 142.

was forced to admit that it 'cannot even be considered sufficient to cover the losses already incurred by our navy in terms of overall tonnage, let alone to meet the real needs'.⁶⁵

It was not just the navy, but the mercantile fleet too. As early as February 1941 the deputy chief of the general staff warned of the merchant navy's 'critical situation ... due to the losses suffered' and urged that new construction be accelerated. Additional materials were promised to aid this, because limited steel allocations had substantially slowed merchant ship production since 1939. In fact, the minister of communications complained that steel shortages had meant that none of the twenty-nine ships from one particular construction programme that were due to be delivered between January 1940 and February 1941 had yet been completed.⁶⁶ The impacts of this attrition were felt militarily, diplomatically and economically. Decreasing numbers of operational ships not only caused supply problems but increased Italo-German frictions, as some German leaders erroneously started to accuse their Italian counterparts of trickery designed to preserve their merchant fleet for the postwar period.⁶⁷ Meanwhile, the loss of oil tankers exacerbated difficulties not only in supplying Axis forces overseas, but in using maritime routes for crucial imports of Romanian oil.⁶⁸ Shortages of key materials such as steel and copper meant that new construction plans for the navy and merchant fleet had to compete with each other, alongside all the other needs of Italy's war. Riccardi felt that he had to choose and advised the head of the war production commissariat (General Favagrossa) that if sufficient material allocations could not be made to both services, then the new mercantile production programme would have to be suspended in favour of the navy's.⁶⁹

The Italian Air Force too was suffering the effects of attrition, albeit in a less pronounced manner. According to one wartime report, while it boasted a total of 2,425 aircraft considered to be either fully (1,800) or partially (625) operational in June 1940, that number had dropped to 2,088 after a year of war. The biggest fall was to its offensive arm: bomber aircraft.⁷⁰ Meanwhile, although the newly arrived German air units certainly bolstered Axis offensive capability, this commitment further taxed an already overstretched Air Force that was reliant on an insufficient logistics network. By mid 1941 losses in the Mediterranean, alongside other theatres, were contributing to a serious shortfall in experienced German aircrews.⁷¹ Losses continued to mount over the second half of the year, with more than 150 aircraft destroyed or damaged between June and October causing a subsequent impact on operations. When the 10th Air Corps (Fliegerkorps X) was ordered in July to prioritize shipping defence due to mounting losses at sea, they had to seriously curtail offensive operations due to insufficient numbers to do both simultaneously.⁷²

The situation deteriorated further as 1941 wore on and Axis fortunes in the theatre reversed. The bombing of Malta eased as substantial numbers of German aircraft were withdrawn to participate in the new war with the Soviet Union. In North Africa, the Axis forces were ejected

⁶⁵ Riccardi to Comando Supremo, 8 July 1941, in Mattesini, *Supermarina*, ii, pt. 1, p. 599.

⁶⁶ Guzzoni to Favagrossa, 20 Feb. 1941; Favagrossa to Comando Supremo, 26 Feb. 1941; and Host Venturi to Comando Supremo, 3 March 1941, in Mattesini, *Supermarina*, ii, pt. 1, pp. 96–100.

⁶⁷ J.S.C.S.C., Air Historical Branch Translations, vol. 7, no. VII/63, 'Conference held in the presence of the Duce between Chef OKW and General Cavallero', 29 Aug. 1941, appendix 2: 'The shipping space situation in the Mediterranean', pp. 20–1.

⁶⁸ Alfieri to Ciano, 17 June 1941, in *D.D.I.*, 9th ser., vii. 255–6.

⁶⁹ Riccardi to Comando Supremo, 8 July 1941, in Mattesini, *Supermarina*, ii, pt. 1, p. 601.

⁷⁰ Rome, Archivio dell'Ufficio Storico dell'Aeronautica Militare (hereafter 'A.U.S.A.M.'), Fondi non inventariati, envelope Relazioni ufficio della guerra in corso, folder 1, Sept. 1942, allegati B1–B2. For contemporaneous concerns over convoy escort activities being likely to increase 'attrition' of aircraft and crews, see General Pricolo to Supermarina, 21 Aug. 1941, in *Le direttive tecnico-operative di Superaereo*, ed. F. Mattesini and M. Cermelli, i, pt. 2 (Rome, 1992), p. 835.

⁷¹ Murray, *Strategy for Defeat*, p. 96.

⁷² Montgomery, Ala., Air Force Historical Research Agency, Maxwell AFB, K113.107-161, H. Felmy, 'The German air force in the Mediterranean theater of war' (1955), pp. 157–8, 164 <<https://www.ibiblio.org/hyperwar/AAF/AAFHS/AAFHS-161.2.pdf>> [accessed 18 Feb. 2025].

from Cyrenaica by the year's end. At sea, this was accompanied by an intensified offensive against Axis communications. In the last four months of the year, around 280,000 tons of shipping was sunk, crippled or otherwise lost.⁷³ The Italian navy also lost precious warships in this period, most notably two fuel-laden cruisers that were pressed into supply duties in December, further exacerbating worries over attrition.⁷⁴ The situation was so serious that Admirals Raeder (head of the German navy) and Riccardi separately confessed views over November and early December that the British had gained maritime 'supremacy' in the Mediterranean.⁷⁵ Yet this situation was seemingly to reverse entirely as the year drew to a close.

Over the course of December several events occurred that greatly affected the Mediterranean war. The Japanese declaration of war stretched Britain's war effort even further, with the subsequent need to withdraw forces from, or dilute reinforcement to, the Mediterranean. An important element of increased British success against Axis shipping in November–December had been the use of light surface forces ('Force K') from Malta, but in mid December the force was gutted in a minefield and the remnants soon withdrawn. Around the same time, an extraordinary Italian special force raid on Alexandria seriously damaged two battleships. Finally, substantial German air reinforcements arrived in the theatre and soon commenced a much more intense and sustained bombing of Malta. The state of the Mediterranean war had seemingly been reversed. The Axis powers were able to use their newfound ascendancy over much of 1942 to ship larger quantities of supplies to North Africa, fuelling Italo-German advances there that would only finally halt at El Alamein. They also intensified their siege of Malta, where bombing and blockade brought the islanders perilously close to starvation. Yet the process of attrition to Axis aero-naval forces persisted. While it continued at a reduced pace, it was still enough to outstrip their limited capacity for replacement, as Axis leaders well recognized.

In January, the Italian navy's deputy chief of staff felt that the ongoing attrition to escorts was so serious that they were in 'dire straits'. Riccardi expressed similar concerns in March over the limited number available and their condition.⁷⁶ In June, the Axis powers successfully frustrated two major British convoys to Malta. Yet rather than striking a triumphant tone, the German naval attaché in Rome instead complained to Berlin that due to recent shipping losses, their 'transport space situation' had become 'alarming'. He urged an intensified construction programme.⁷⁷ New construction programmes though, however grandiose, were hamstrung by the twin factors of shortages in key construction materials and insufficient skilled labourers.⁷⁸ A report into proposed Italian naval construction programmes highlighted the 'urgent' need to replace destroyer losses. Yet the planned building programme to accomplish this would actually create only sixteen new destroyers, well below the losses that had been suffered. Furthermore, it would require the unlikely assignment of an additional 1,500–2,000 skilled workers and 82,500 tons of steel at a rate of 5,500 tons per month until December 1943. Even if they could somehow achieve all of this, the programme was expected to complete only in early 1944.⁷⁹ Thus at the time of

⁷³ Calculated using data from T.N.A., AIR 20/9598; and Röhwer, *Allied Submarine Attacks*. The lower figures given in the first volume of the Italian official naval history should be disregarded due to the numerous bizarre omissions, such as the liners *Neptunia* and *Oceania*; see *L.M.I.*, i, table LXXVib, pp. 232–3.

⁷⁴ For a succinct account of the action where these cruisers were sunk, see J. Greene and A. Massignani, *The Naval War in the Mediterranean, 1940–1943* (London, 1998), pp. 198–200. For a contemporaneous mention of concern regarding naval attrition, see Admiral Bergamini's 'worn out' comment from Dec. 1941, quoted in *L.M.I.*, vii: *La difesa del traffico con l'Africa Settentrionale dal 1 ottobre al 30 settembre 1942* (Rome, 1976), p. 187.

⁷⁵ See report of the C-in-C navy to the Fuehrer at Wolfsschanze, 13 Nov. 1941, in *Fuehrer Conferences on Naval Affairs, 1939–1945* (Annapolis, Md., 1990), p. 240; and minutes of meeting of 4 Dec. 1941, in *V.C.S.M.G.*, ii, 119.

⁷⁶ Minutes of meetings of 9 Jan. and 29 March 1942, in *V.C.S.M.G.*, iii, 32, 329.

⁷⁷ Freiburg, Bundesarchiv-Militärarchiv (hereafter 'B.A.-M.A.'), RM 11/54, B.Nr. GKdos 850/42, Marineattaché Rom to OKM, 26 June 1942, fols. 186–7.

⁷⁸ On skilled worker shortages and mobilization efforts, see A. Raspin, *The Italian War Economy, 1940–1943, With Particular Reference to Italian Relations With Germany* (New York, 1986), pp. 279–80, 294.

⁷⁹ Rome, Archivio dell'Ufficio Storico dello Stato Maggiore dell'Esercito (hereafter 'A.U.S.S.M.E.'), I-4, B.42, C.15, Programma Regia Marina, 1943, 9 Sept. 1942, pp. 1–2, 4, 5–7.

Operation PEDESTAL, Riccardi and his subordinates felt that they had insufficient escort forces (either in ships or aircraft) available to justify risking the main battlefleet against the heavily guarded convoy.⁸⁰

The state of Axis merchant shipping was no better. A construction programme already underway in September 1942 had been intended to add over 150 new vessels of various sizes. However, this too would require an additional 43,000 tons of steel over the October–April period and, unless at least 3,000 additional skilled workers could be supplied, would take until February 1944 to complete. A new programme designed to begin in 1943 and deliver another thirty-one vessels would need at least another 186,000 tons of additional construction materials. If an augmented total of at least 13,500 workers could be dedicated to this, working at increased rate, it was hoped that the programme could be completed by the end of August 1944.⁸¹

Neither the material nor labour requirements for these programmes were realizable. The navy and merchant marine consistently received steel allocations well below their wartime construction requirements. Domestic production fell far short of what was needed and attempts to procure more from Germany yielded much less than was needed to make up the shortfall.⁸² All this was taking place to a backdrop of ever dwindling naval and mercantile fuel stocks. The chief of the general staff, Ugo Cavallero, warned in mid 1942 that they were using more than double the fuel that they were importing each month, with serious consequences for their ability to operate. Repeated appeals to Germany for a greater allocation of fuel supply never yielded the required amounts thanks to Germany's own oil precarity.⁸³ In late September, Mussolini himself summarized gloomily that 'the battle in the Mediterranean is, for the present, lost for us' as they 'no longer had enough shipping space to win the battle'.⁸⁴ The following month, he convened a major conference of political and military leaders at the Palazzo Venezia in Rome on the subject of 'Strengthening the Armed Forces'. Despite this title, the conference minutes mainly consist of delegates highlighting the scale of the challenges faced and the difficulties meeting them. The navy had suffered its most serious losses to its escorts, although the cruiser situation was also 'difficult' with only three available, one of which was damaged. The 'indispensable' merchant marine was in an 'extremely serious' state. The minister for communications, Giovanni Host Venturi, pointed out that the merchant marine had already been depleted below the minimum capacity needed to fulfil all military and civilian needs, with a deficit of 167,000 tons of shipping. Worse, even if the new construction targets could somehow be met, he was not sure if this would be enough to replace losses, let alone provide the required overall increase. Hopes to increase aircraft production were beset by similar problems of insufficient skilled workers and key materials for construction.⁸⁵

Axis military and political leaders clearly perceived themselves to be losing a war of attrition in the Mediterranean prior to Operation PEDESTAL, and even more so by the time of TORCH. They viewed this 'attrition' in the modern sense of the term; the loss or destruction of forces (in this case ships and aircraft) at a faster rate than they could be replaced. They frequently referred to

⁸⁰ See the entry for 12 Aug. 1942 in U. Cavallero, *Diario 1940–1943*, ed. G. Bucciante (Rome, 1984), pp. 457–8; and G. Giorgerini, *La guerra italiana sul mare. La Marina tra vittoria e sconfitta, 1940–1943* (Milan, 2002), pp. 380, 383–7.

⁸¹ A.U.S.S.M.E., I-4, B.42, C.15, Marina Mercantile, Programma costruzione in corso e 1943, 9 Sept. 1942, pp. 1–4.

⁸² Gooch, *Mussolini's War*, pp. 186–7, 223, 327–8. Jonas Scherner has recently argued that Germany had sufficient steel to supply Italian requests in 1942 alongside their own needs, yet they falsely claimed otherwise to justify supplying limited quantities to Italy. This was also the case for copper. See J. Scherner, 'Incompetence or ingenuity? Why did Nazi Germany not seek closer wartime economic cooperation with Italy?', *Journal of Contemporary History*, lvii (2022), 553–76, at pp. 558–9, 568.

⁸³ Cavallero to Keitel, June 1942, in *D.S.C.S.*, vii, pt. 2, pp. 141–2; A. Tooze, *The Wages of Destruction: the Making and Breaking of the Nazi Economy* (London, 2006), p. 411; and Sadkovich, *Italian Navy*, p. 286.

⁸⁴ B.A.-M.A., RH 19 VIII/27, fol. 55, 'Erinnerungsprotokoll über den Empfang beim Duce in Rocca della Caminata um 11 Uhr', 24 Sept. 1942.

⁸⁵ T.N.A., GFM 36/6, 'Verbale della riunione tenuta il giorno 1° ottobre 1942 a Palazzo Venezia presso il Duce sull'argomento "Potenziamento delle FF.AA"', 1 Oct. 1942, pp. 8, 10, 14, 18–19.

this explicitly using terms like 'logorio/logoramento' and 'usura'. They were right to hold these views. By the end of September 1942 the Axis powers had lost around 1.2 million tons of shipping to all causes in the Mediterranean, in addition to the more than 1.2 million tons that became trapped outside of the theatre on Italy's declaration of war in June 1940. The navy had lost a battleship, nine cruisers (plus an old armoured cruiser), forty-nine escorts (twenty-seven destroyers and twenty-two torpedo boats), a sloop and numerous minor vessels across the Mediterranean and Red Sea combined.⁸⁶ Italian submarine losses in the same time period (excluding those in the Atlantic) were approximately thirty-eight vessels, although there is a little ambiguity in the source material, while thirteen German U-boats were lost in the Mediterranean.⁸⁷

By contrast, Italy launched just over 295,000 tons of new merchant shipping over thirty-six months in 1940–2, about a quarter of their in-theatre wartime losses prior to October 1942. Seizures from Greece, Yugoslavia and elsewhere, and purchases of foreign vessels added little to this total.⁸⁸ Warship construction was similarly inadequate. The few larger warships that were launched in wartime were all already under construction prior to Italy's declaration of war and even then, many of these were never completed. For instance, of the twelve large 'Capitani Romani' class warships under construction at the start of Italy's war, only three made it into service before the September 1943 armistice and only one of these (*Attilio Regolo*) before October 1942.⁸⁹ Despite the crucial importance of escorts, Italy managed to launch only five destroyers, sixteen torpedo boats and twenty-eight corvettes during the war that would be suited to undertaking escort roles. Of these, five of the torpedo boats and all but one of the corvettes entered service only in 1943, and in some cases only shortly before the Italian armistice.⁹⁰ For the Germans, similar shortages manifested for a different reason: they were stretched through wider commitments across Europe and the Atlantic, with only finite aero-naval assets to spare for the Mediterranean. Serious losses were then suffered among those that were sent. General Paul Deichmann, chief of staff for the German 2nd Air Fleet (Luftflotte 2) in 1942–3, would later write that by September 1942 'the few German U-Boats that were ready for sea in the Mediterranean could probably accomplish little or nothing at all' in terms of opposing any upcoming Allied landing. He also felt that they had insufficient fighter aircraft to offer suitable escort for a sortie by the Italian fleet.⁹¹

⁸⁶ Merchant shipping figures calculated using T.N.A., AIR 20/9598, 'Enemy shipping losses in the Mediterranean'; and Röhwer, *Allied Submarine Attacks*. These figures include a handful of 'constructive losses' (ships damaged beyond any realistic change of repair) and those to other (e.g., capture) and unknown causes, but do not include losses in the Red Sea. For the figure of merchant ships trapped outside of the Mediterranean on the Italian declaration of war, see Bragadin, *Italian Navy*, p. 364. Warship losses from *L.M.I.*, ii: *Navi militare perdute*, cross-checked with Bragadin, *Italian Navy*; and Röhwer, *Allied Submarine Attacks*. In the Italian Navy 'torpedo boats' (*torpediniere*) were equivalent in size to a small destroyer rather than a motor torpedo boat.

⁸⁷ Italian submarine losses from *L.M.I.*, ii, cross-checked with Bragadin, *Italian Navy*; and Röhwer, *Allied Submarine Attacks*. German U-boat losses from Paterson, *U-boats in the Mediterranean*, pp. 186–7, cross-checked with Hessler, *U-boat War* and 'List of all boats in the Mediterrean [sic]' (see n. 58). German U-boat losses here include one (U-573) that was sold to Spain after being badly damaged. Paterson has listed one U-boat (U-374) twice in error; it has been counted only once in this article.

⁸⁸ Construction calculated from C. Ristuccia, 'The Italian economy under fascism, 1934–43: the rearmament paradox' (unpublished University of Oxford D.Phil. thesis, 1998), p. 226. Seizures of Greek and Yugoslav merchant vessels are hard to precisely determine. For instance, the Italian official history appears to suggest that over the course of 1941, a little over 80,000 tons of 'foreign ships' were incorporated into the merchant marine, although it is not explained how many of these are seizures versus purchases, or where they came from, or how many of them were fully operational. See *L.M.I.*, i, table VIIIb, pp. 32–3.

⁸⁹ *L.M.I.*, xxi: *L'organizzazione*, pt. 2, pp. 106–8.

⁹⁰ *L.M.I.*, xxi, pt. 2, pp. 111, 117, 121.

⁹¹ College Park, Md., National Archives and Records Administration, Record Group 549, box 44, Foreign Military Studies, MS# D-008, General der Flieger P. Deichmann, 'Designation of Oberbefehlshaber Sud as supreme commander in the Mediterranean theater in Sept. 1942 pursuant to "Fuehrer's order"', 31 March 1947, p. 28.

In both perception and reality then, the Axis powers were losing a war of attrition prior to PEDESTAL and TORCH. Yet paradoxically, at least in terms of the war at sea, TORCH seemingly presented something of an opportunity for them to reverse this trend. This was to prove a false hope.

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Operation TORCH began on 8 November 1942 with the first Allied landings in Morocco and Algeria. Although this was evidently a negative development for the Axis powers in many ways, it did offer one potential opportunity, as Hitler chose to activate contingency plans for the occupation of French territories.⁹² This meant there was seemingly a chance to seize large quantities of French warships and merchantmen, thus rectifying much of the problem of attrition at a stroke. Informing Mussolini of his plans, Hitler promised him that Italy would be the 'sole claimant' of any French warships and despatched his new reichskommissar for shipping, Karl Kaufmann, to oversee the distribution of seized French merchantmen. He expressed confidence that enough shipping could be seized to replace, or perhaps even increase, tonnage in the central Mediterranean and Black Sea.⁹³ Such hopes quickly proved unfounded.

The French fleet at Toulon represented over half the total tonnage of French warships worldwide. Yet as German forces entered the port area, French crews dramatically scuttled seventy-seven warships totalling over 230,000 tons, including three capital ships, seven cruisers, thirty-two destroyers and sixteen submarines.⁹⁴ On reviewing the state of the scuttled vessels, Supermarina concluded that they were nearly all irreparable and instead should be cannibalized for parts. Those that were realistically repairable would take a long time. These, along with a handful of French warships seized at Bizerte, were found to have suffered badly from the inactivity imposed by the armistice terms of 1940. All needed serious refurbishment, and many needed augmented and modernized anti-aircraft armaments. Ultimately, of the French warships seized, only three small destroyers and a submarine captured at Bizerte were available relatively quickly. Of the rest, nearly all were irreparable, or repairs were not completed before the Italian armistice.⁹⁵

The seizure of French merchant vessels was more successful and initially brought greater optimism among Axis leaders. Kaufmann shared Hitler's confidence that French merchant ships would provide sufficient tonnage to replace their losses, and he soon reported positive progress. Host Venturi was more guarded about the prospects of French tonnage but still told Mussolini that the shipping situation could now be viewed 'with some serenity' due to the expected influx of French ships.⁹⁶ This initial optimism was misplaced, as much of the tonnage seized proved to be unseaworthy. Some was deemed completely unsalvageable while some had to be placed into already overburdened repair yards. Some had to be converted into escort roles or sent to the Aegean and Black seas. In fact, of the 742,000 tons Kaufmann recorded as 'procured', a little under half had proved sufficiently seaworthy to be transferred to Italian ports by February 1943. Only a small proportion of this was ever actually used in the supply of Tunisia.⁹⁷

⁹² For a succinct summary of how this process unfolded from the German perspective, see M.F., *Germany and the Second World War*, vi. 822–7.

⁹³ Hitler to Mussolini, 26 Nov. 1942, in *D.D.I.*, 9th ser., ix. 346–7.

⁹⁴ M.F., *Germany and the Second World War*, vi. 826–7. Tonnage figure from M. Neiberg, *When France Fell: the Vichy Crisis and the Fate of the Anglo-American Alliance* (Cambridge, Mass., 2021), p. 195, which also offers slightly different warship numbers.

⁹⁵ E. Bagnasco, 'Navi incorporate nella Marina Italiana durante la seconda guerra mondiale', *Rivista Marittima*, Oct. 1961, 21–48, at pp. 27–9, 31–2, 34–45.

⁹⁶ London, Imperial War Museum (hereafter 'I.W.M.'), Speer Collection, FD 4195/45, Reports to Hitler on German shipping by Karl Kaufmann, pp. 9–10; Kaufmann to Hitler, 16 Dec. 1942; and T.N.A., GFM 36/6, 'Verbal delle riunioni tenuta il giorno 29 gennaio 1943 a Palazzo Venezia presso il Duce sull'argomento "Potenziamento delle FF.AA."', 29 Jan. 1943, p. 38.

⁹⁷ Hammond, *Strangling the Axis*, pp. 161–2, 168–9.

As a result, despite a brief period of optimism, Axis authorities continued to view the Mediterranean war as one of attrition in which they were losing. This stands in stark contrast to some of the claims in the Italian official history, which argues that cargo deliveries to Tunisia were unaffected by shipping capacity and were instead limited only by the capacity of the destination ports. Elsewhere, it is misleadingly claimed that almost 1.8 million tons of Axis shipping was available and ready to operate in the Mediterranean at the start of 1943 and that 1.5 million remained at the time of the September armistice.⁹⁸ Some have since echoed the claim that seized French shipping provided sufficient transport means for Tunisia and largely rectified the problem of previous attrition to shipping stocks.⁹⁹ In reality, the shortage of Axis shipping during the Tunisian campaign was acute. Although adequate, alongside air transport, to allow the rapid lodgement of forces to establish a reinforced Tunisian foothold, supply deliveries to Tunisia fell well below the theoretical monthly capacity of the ports.¹⁰⁰ The provenance of the shipping totals given in the unfootnoted official history is unclear, but they appear to include large quantities of unusable shipping. According to the new minister of communications, Vittorio Cini, after discounting shipping trapped outside of the theatre, the 'final balance' available was about 1.47 million tons as of 1 March. Of this, 450,000 tons consisted of completely unsuitable vessels, such as transatlantic liners, while more than 250,000 tons were under repair – a slow process from which most would not return to service. The actual total of functional shipping was 769,000 tons (595,000 of cargo ships and 174,000 of tankers). With few exceptions, those remaining were the slowest ships with the 'lowest efficiency'. After reporting this to Mussolini, Cini told him flatly that there was a 'transport crisis'. The result was not only an inability to supply Tunisia sufficiently but also an exacerbation of the supply crisis for the islands of Sardinia and Sicily and those in the Aegean.¹⁰¹

The urgent shortage of shipping was matched by an ever more severe paucity of escorts. In January, Riccardi again told the Duce and assembled ministers and military leaders that the greatest problem facing the navy was the ongoing attrition to light warships and submarines. Destroyers, torpedo boats and submarines had each suffered loss rates of over 50 per cent and they had to be the top priority for construction. The issue was exacerbated by the number of warships in need of repair, which was simultaneously drawing away skilled workers from the limited pool of those available and so creating another serious obstacle to the completion of new construction programmes.¹⁰² In March, the chief of the Italian Air Force, General Fougier, stressed the urgent need to 'reduce attrition' to air and naval escorts. Admiral Sansonetti

⁹⁸ On the port capacity claim, see *L.M.I.*, vi: *La difesa del traffico*, pp. 6–9. For the tonnage claim, see *L.M.I.*, i. 36–7; these figures are only for ships over 500 tons and seemingly include ships under repair and hospital ships (p. 28).

⁹⁹ M. Van Creveld, *Supplying War: Logistics From Wallenstein to Patton* (2nd edn., Cambridge, 2004), p. 199, states this emphatically; V. P. O'Hara, *Struggle for the Middle Sea: the Great Navies at War in the Mediterranean, 1940–1945* (London, 2009), p. 207, argues that by Feb. 1943 seized French shipping was still sufficient to 'offset mercantile losses to a considerable extent'; Greene and Massignani, *Naval War*, p. 282, offers a similar standpoint.

¹⁰⁰ See Hammond, *Strangling the Axis*, pp. 160–72.

¹⁰¹ 'Verbale delle riunioni tenute dal Duce a Palazzo Venezia', 10 March 1943, in *V.C.S.M.G.*, iv. 327–8, 330–2. On inadequate repair facilities and hopes for improvement, see Ristuccia, 'Rearmament paradox', pp. 237–8; I.W.M., Speer Collection, FD 4195/45, Reports to Hitler on German shipping by Karl Kaufmann, 'Fourth report by the Reichskommissar for shipping on the situation in Holland/Belgium/France and further developments in the Mediterranean', 6 March 1943, p. 26 and 'Seventh report by the Reichskommissar for shipping on the situation in the Mediterranean, in the Aegean in the Black Sea and in the North Sea and Baltic Area', n.d., p. 47; and F. W. Deakin, *The Brutal Friendship: Mussolini, Hitler and the Fall of Fascism* (London, 1962), p. 81. For a dedicated examination linking the war at sea with shortages on Sicily and Sardinia, see Hammond and De Ninno, "No-one wears the fascist badge anymore".

¹⁰² T.N.A., GFM 36/6, 'Verbal delle riunioni tenute il giorno 29 gennaio 1943 a Palazzo Venezia presso il Duce sull'argomento "Potenziamento delle FF.AA."', 29 Jan. 1943, pp. 28–31. By January 1943 all other forms of naval construction were suspended or cancelled in favour of building up escorts; see Gooch, *Mussolini's War*, p. 329.

gloomily reported that just seven escort ships were available for the Tunisian routes, where they were most needed.¹⁰³ Riccardi, too, accepted that the 'sheer scale' of attrition to the navy had made the situation utterly untenable.¹⁰⁴ Even as the final collapse in Tunisia approached, further desperate appeals were made to Germany to arrest the situation. Large quantities of fuel, construction materials and naval armaments were requested in full knowledge that, even if granted, the war in North Africa could not be saved.¹⁰⁵

This pessimism was well founded. Despite extensive efforts in the face of grave challenges, the Axis powers simply lacked the necessary quantity of appropriate vessels to fulfil their requirements. Supply deliveries to Tunisia fell below the stated requirements to sustain the Axis forces based there and a long way below the combined theoretical handling capacity of the Tunisian ports. All the while losses on the 'route of death' continued to mount. The impact was felt beyond Tunisian shores. The lack of available shipping in a fit state of repair caused serious military and civilian supply shortages across the Axis held islands as well.¹⁰⁶ The situation was no better for the Italian Air Force. An internal report from September 1942 concluded that aircraft losses combined with 'deficiency in industrial potential, along with the extreme scarcity of fuel' had rendered the service unfit to meet the scale of tasks facing it.¹⁰⁷ By Christmas Fougier was forced to admit that the 'scarce availability' of aircraft made constant air cover of key Tunisian ports essentially impossible for them.¹⁰⁸ The situation only continued to deteriorate as the Tunisian campaign wore on and Italian air power suffered further attrition, diminishing even further their ability to contribute to the maritime war.¹⁰⁹

German commitment to the maritime war was also greatly undermined by October 1942, through a mixture of attrition, competing strategic priorities and simple geography. The thirteen U-boats lost in-theatre by that point tell only part of the story. There were at least seventeen failed attempts by U-boats to gain entry to the theatre over the same period, leading to another five sunk and seven damaged as they braved the straits of Gibraltar.¹¹⁰ These losses were hindering the primary focus of the U-boat arm; the Battle of the Atlantic. Admiral Karl Dönitz had always been opposed to sending them to the Mediterranean, which he called a 'subsidiary theatre of war'.¹¹¹ Ultimately, while around half of the sixty-two U-boats that entered the Mediterranean did so after TORCH, total numbers in-theatre started to decline shortly after the landings.¹¹² German aircraft losses were substantial: according to one source, 989 were lost across the whole Mediterranean theatre during the first eight months of 1942 alone.¹¹³ The commitment of German aircraft to the theatre did briefly continue to climb after TORCH, as reinforcements

¹⁰³ 'Riunione tenuta dell'Eccellenza Ambrosio a Palazzo Vidoni', 23 March 1943, in *D.S.C.S.*, ix, pt. 2, pp. 223, 225.

¹⁰⁴ Riccardi to Capo di Stato Maggiore Generale, 27 March 1943, in *D.S.C.S.*, ix, pt. 2, p. 249.

¹⁰⁵ I.W.M., Enemy Documents Section, AL 2761/4, 'Riunione a Palazzo Chigi circa richieste di mezzi bellici alla parte Germanica', 18 Apr. 1943, pp. 6–9; and accompanying letter from Bastianini to Mussolini, 19 Apr. 1943, pp. 3–4.

¹⁰⁶ Hammond, *Strangling the Axis*, pp. 160–2, 166–72.

¹⁰⁷ A.U.S.A.M., Fondi non inventariati, envelope Relazioni ufficio della guerra in corso, folder 1, Sept. 1942, pp. 15–16.

¹⁰⁸ Fougier memorandum, 'Impiego forze aeree in Tunisia', in *Superaereo*, ii, pt. 1, p. 536.

¹⁰⁹ This was something Fougier clearly recognized. See, e.g., Riunione tenuta dell'Eccellenza Ambrosio a Palazzo Vidoni, 23 March 1943, in *D.S.C.S.*, ix, pt. 2, p. 223.

¹¹⁰ Paterson, *U-boats in the Mediterranean*, pp. 188–9.

¹¹¹ M.F., *Germany and the Second World War*, vi. 362–3.

¹¹² Entry dates based on the figures in Paterson, *U-boats in the Mediterranean*, pp. 186–7, although U-374 appears twice in that list and so has been counted only once here. For total numbers in the theatre, see the graph in 'The operational strength of the U-boat force in the Mediterranean Sept. 1941–Sept. 1944' graph at 'U-boat war in the Mediterranean', uboat.net <<https://uboat.net/ops/mediterranean.htm>> [accessed 30 July 2026].

¹¹³ Losses are in Zamansky, 'German air force resources', p. 24. These figures include all losses, not just in maritime operations.

flooded the theatre. The strength of Luftflotte 2 peaked at 1,532 aircraft at the end of November, but only 858 of these were in an operational state and even this total could not be sustained. Total numbers returned to roughly pre-TORCH levels by late January and the total of serviceable aircraft that were ready for operations declined steadily throughout 1943, dropping below 150 by the end of the year.¹¹⁴

Overall, in terms of the maritime war, TORCH did not offer a turning point but instead largely emphasized the continuity of (and allowed for further acceleration of) a war of attrition and the Axis inability to sustain it.

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The modern concept of attrition is important to how we view warfare, in terms of both conduct and outcomes. It is a concept that has developed over time, as the 'Delbrückian' approach suited to weaker powers in war was transformed by the experience of industrially driven, globalized 'total' war. It came to encapsulate exhausting one's enemy through the pursuit of combat and the destruction of men and materiel and so became associated more with economic strength than with weakness. The Second World War was an important milestone in this evolution towards the commonly accepted definition that we have today. Key military and political leaders in that conflict perceived losses of men and materiel as a form of attrition, even when it wasn't an aim in itself. It was not just a potential strategy that could be implemented, but also an inevitable effect of war: attrition was something that happened to a combatant power regardless of intention.

This form of attrition was critical in determining victory and defeat in the Mediterranean. Neither side there actively pursued an attritional approach to maritime operations as an end, based solely around destruction versus production. Yet the destruction of opposing forces was an inevitable effect of ongoing conflict and an essential precursor to achieving their objectives. The interrogation of multinational source material reveals that this destruction of Axis maritime power in the Mediterranean vastly outstripped their capacity to replace it, and had done so before PEDESTAL and TORCH. Not only does thorough examination of the evidence make that clear retrospectively, but it also shows that this was how it was perceived at the time.

Axis military and political leaders clearly recognized the effects of attrition, which they perceived as overpowering their ability to prosecute the Mediterranean war. This had been an ongoing perception since 1940, which progressed regardless of factors like the status of the war in North Africa or the siege of Malta. Even repeated Axis tactical successes over much of 1942 did not alter their view that they were losing crucial ships and aircraft at a faster rate than they could be replaced, which was fundamentally undermining their war in the Mediterranean. This was a consistent view that existed both prior to and following Operations PEDESTAL and TORCH, neither of which they saw as some form of fundamental 'turning point' in the maritime war, even if they were perceived as important events.

Both PEDESTAL and especially TORCH were important moments in the war in many respects, but they should not be presented as 'turning points' in the maritime war.¹¹⁵ Historians should instead treat the interconnected Mediterranean war as a war of attrition. Attrition occurred in multiple forms simultaneously, whether primarily against manpower and equipment across the Mediterranean littorals or against resources and will in the blockade and bombing of the Italian

¹¹⁴ Luftflotte 2 strength (total and operational) is tracked in Gundelach, *Die Deutsche Luftwaffe in Mittelmeer*, ii, anlage 29. See also S. Ball, *Alamein* (Oxford, 2016), pp. 178–9.

¹¹⁵ To take just one example of an aspect of the war where TORCH was important, see the following for a starting point on its impact on the Anglo-American alliance: N. Barr, *Yanks and Limeys: Alliance Warfare in the Second World War* (London, 2015), pp. 187–208; A. Buchanan, *American Grand Strategy in the Mediterranean During World War II* (New York, 2014), pp. 67–87; and K. Smith, *Conflict Over Convoys: Anglo-American Logistics Diplomacy in the Second World War* (Cambridge, 1996).

home front. For the crucial maritime war, it was primarily one of attrition of machines. Understanding the importance of attrition in the maritime war enhances our understanding of victory and defeat there overall, and also brings the Mediterranean into line with views of other maritime theatres and campaigns of the Second World War.¹¹⁶ After all, Axis leaders in the Mediterranean consistently perceived themselves to be losing a war of attrition, and they were right.

¹¹⁶ Indeed, C. Nolan, *The Allure of Battle: a History of How Wars Have Been Won and Lost* (Oxford, 2017) forcefully argues that throughout history wars have nearly always been decided by a process of attrition/exhaustion rather than some form of decisive battle or turning point.

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