

Arms Races in International Politics

From the Nineteenth to the Twenty-First Century

Edited by
THOMAS MAHNKEN,
JOSEPH MAIOLO,
and
DAVID STEVENSON

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The Anglo-German Naval Race, 1898–1914

Matthew S. Seligmann

In June 1897 Rear Admiral Alfred Tirpitz, the in-coming state secretary at Germany's Imperial Navy Office, tabled a memorandum arguing for a warship construction programme whose purpose was to enable his country to pit its maritime strength against that of the world's leading naval power, Great Britain: 'For Germany,' Tirpitz explained, 'the most dangerous naval enemy at the present time is England. It is also the enemy against which we most urgently require a certain measure of naval force as a political power factor.'¹ Although few then knew it, these words would soon inaugurate a fierce competition in naval armaments between Europe's two leading industrial and commercial powers, one that would poison relations between them and culminate a decade and a half later in war.

The origins of the 'Tirpitz Plan', as Germany's pre-First World War naval expansion has been dubbed, have long been debated. Some historians have stressed the role of key individuals. Top of the list for many comes Kaiser Wilhelm II, whose upbringing endowed him with both an admiration of the Royal Navy and a desire to emulate and surpass it. Eager to build up 'his navy', as he saw it, he provided the political foundations for naval expansion.² By contrast, other historians, while agreeing on the role of the individual, argue that the principal driver was not Kaiser Wilhelm II but Tirpitz, who was motivated by *Ressortteifer*, the desire to enhance the prestige of the navy in which he served and to build up the power and influence of the bureaucratic machine he led.³ Alternative schools of thought have emerged that downplay individual actors and focus more on domestic political or foreign policy issues. The Kehrite school, for example, stresses the domestic roots of German naval expansion. According to their analysis, Germany at this time was an advanced industrial nation with a political system that privileged the place of pre-industrial elites. These elites were conscious of the challenge that modernity might present to their status and power and so sought strategies to buttress their

¹ Jonathan Steinberg, *Yesterday's Deterrent: Tirpitz and the Birth of the German Battle Fleet* (New York, 1965).

² John C. G. Röhl, *Wilhelm II: the Kaiser's Personal Monarchy, 1888–1900* (Oxford, 2004), especially chapter 32.

³ Patrick J. Kelly, *Tirpitz and the Imperial German Navy* (Bloomington, 2011).

position. For some, building a navy, a course that could appeal to the self-interest of the industrial middle class, while simultaneously whipping up the patriotism of German workers, seemed an excellent mechanism for validating the existing order through a process of 'negative integration'. Key industrial combines, such as Krupp, would campaign alongside specially formulated pressure groups, such as the Navy League, for a naval expansion programme that would be led by the old order and paid for in a way that would enhance the income and position of the regime's key supporters, the east-Elbian landed aristocracy (the Junkers). In this context, German navalism was a 'domestic political crisis strategy' more than anything else.⁴ Finally, there are those historians who stress the importance of the new navy to German foreign policy. Following the debacle of misguided German efforts to expand the empire's influence in southern Africa in the early 1890s—attempts that culminated in the diplomatic catastrophe of the 'Kruger Telegram' affair and a crisis in Anglo-German relations—the German leadership decided that it needed to give some teeth to its proposed policy of enhancing Germany's global influence through *Weltpolitik*. The teeth in question consisted of a naval force that would make German views count in the eyes of other global powers, especially Britain. In this context, the navy was designed to give the Reich political leverage in world affairs. Faced with such a conglomeration of naval power, accommodating Germany rather than opposing her would become the preferred option of the other world powers.⁵ Navigating these diverse interpretations is no simple task, as all have their merits. None can be excluded as considerations that played no part in German maritime expansion. However, in the present state of research there are grounds for arguing that the strategic value of the navy as a form of peacetime leverage in global political affairs was the most influential factor in the thinking of those who drove the Tirpitz Plan and for many of those who supported it.

Whatever its origins, given its catastrophic impact, it is hardly surprising that historians have long sought to understand the dynamics of what is sometimes referred to as 'the great naval race'.⁶ The traditional picture is well established. As Paul Kennedy concluded many years ago in a devastating critique of German strategic thinking, not only was Tirpitz's goal always unattainable, but his preferred means of pursuing it and the rationale he advanced in support of it were also fundamentally unsound.⁷ In Kennedy's analysis, this was an arms race that should not have taken place, where the challenger had no prospect of overtaking the leader, and where the only possible outcome was a humiliating defeat. Nothing has been written to date that would seriously undermine these conclusions.

⁴ Volker R. Berghahn, *Germany and the Approach of War in 1914* (New York, 1973); Eckart Kehr, *Economic Interest, Militarism and Foreign Policy* (Berkeley, 1977), especially chapter 4.

⁵ Matthew S. Seligmann, *Rivalry in Southern Africa 1893–1899: The Transformation of German Colonial Policy* (Basingstoke, 1998).

⁶ Peter Padfield, *The Great Naval Race: The Anglo-German Naval Rivalry, 1900–1914* (New York, 1974).

⁷ Paul M. Kennedy, 'Strategic Aspects of the Anglo-German Naval Race', in P. M. Kennedy, ed., *Strategy and Diplomacy 1870–1945: Eight Studies* (London, 1983), 129–60. See also, Rolf Hobson, *Imperialism at Sea: Naval Strategic Thought, the Ideology of Sea Power and the Tirpitz Plan, 1875–1914* (Leiden, 2002).

Consequently, as has long been recognized, Tirpitz's naval expansion programme offers a masterclass in how not to devise, launch, or manage an armaments race. Laden with inbuilt rigidities, untested dogmatism, and questionable *a priori* assumptions, it contained the seeds of its own demise. Yet, while recognizing that Germany's decision to vie for influence through an ambitious weapons-acquisition policy was grounded in a series of seriously flawed assumptions, it should be acknowledged that these shortcomings did not of themselves guarantee the plan's failure. What made this certain was the British government's decision to recognize and accept Tirpitz's challenge and to undertake specific, direct, and determined measures to counter it. It will be on this response, which was to prove devastatingly successful, that this paper will focus. Particular emphasis will be placed on the means—tactical and technological—by which Britain achieved victory as well as on the reasons for the ease with which this victory occurred. It will conclude with an assessment of the dire consequences of the German failure. To ground all this, however, it is first necessary to understand why Tirpitz believed a contest was possible.

Tirpitz calculated his programme and hence his entire challenge to the Royal Navy on the basis that he could confine the competition between the British and German navies to just one metric, namely the number of battleships.⁸ By restricting the arms race in this way, he anticipated being able to reduce the cost of competition to manageable proportions. The logic behind this assumption rested upon four discreet but mutually interlocking notions.

First, was the belief that, because of Britain's need to project power globally, the number of battleships needed to mount an effective challenge was lower than it might initially seem. Many British battleships were based on distant stations where they protected British imperial interests from rival colonial powers, and in Tirpitz's view this requirement was destined to be ongoing, meaning that these assets were unlikely ever to be recalled home. Thus, Germany could exercise an influence with her battle fleet out of all proportion to its absolute power because Britain could not muster in the relevant location the crushing superiority that the Royal Navy undoubtedly possessed.

Second, it was Tirpitz's belief that, although for operational reasons Germany needed to build cruisers and destroyers of comparable quality to those possessed by other powers, German battleships needed to be neither as capable nor as versatile as their British counterparts. Built for only one mission—exerting pressure on Britain—they were only required to operate in one theatre—the North Sea—and could thus be designed with this reductive assumption in mind. Thus, costly capabilities (such as extended range and high crew habitability) that were necessary on multi-role Royal Naval vessels, could be excluded from German vessels, with significant savings accruing as a result.

Third, although it would inevitably have been the case that a fleet designed with combat as its principal mission would make preparedness for battle a key objective,

⁸ This is the logic of the original Tirpitz Memorandum of 1897, the full text of which is quoted in Steinberg, *Yesterday's Deterrent*, 208–23.

in a fleet designed *principally* for political purposes and with numbers of capital ships as the main source of leverage, this was not a priority. Hence, there was no need to maintain the German battle fleet in a state of continual combat readiness and, consequently, the personnel costs of the German battle fleet, already low due to the system of conscription that drafted most of the crews, were rendered even lower because the numbers of long-term specialist ratings needed for a fleet always prepared for battle were not required.

Finally, the core political function of the German battle fleet also permitted Tirpitz to downgrade the importance of some qualitative features in the ships he ordered. Particularly in the early stages of his programme, Tirpitz was content for Germany's battleships to be of lower displacement than their Royal Navy counterparts and to mount a main battery composed of guns of a smaller calibre.⁹ While this decision undoubtedly reflected, at least in part, a well-deserved confidence in the ballistic properties of Krupp-manufactured heavy ordnance, as well as an appreciation of the potential advantages of more rapid fire—a property of these smaller weapons—the lower cost of lighter artillery was a key factor.

Given all of the above considerations, Tirpitz was convinced that in terms both of total numbers needed as well as individual unit costs, Germany would enjoy a significant competitive advantage over Britain if it concentrated on continuous capital ship building. Of course, were there to be radical changes in warship design, especially changes that increased size and cost, then these calculations would be thrown into doubt. However, the fact that battleship design had remained, various marginal and incremental improvements notwithstanding, relatively static in most essentials since the launch of the *Majestic* Class in 1894 suggested, to Tirpitz at least, that this assumption was a realistic one.

Unfortunately for Tirpitz, the Royal Navy, especially following the appointment in 1904 of Admiral Sir John Fisher as First Sea Lord, saw no reason to oblige the Germans by competing on only one metric, least of all on a metric that had been chosen by and was most convenient to their new challenger. On the contrary, Fisher brought to the arms race the certain conviction that if competition were to take place, then it should be conducted on the basis that was least helpful to the other side. For Fisher this meant an emphasis on two additional areas of competition.

The first of these was 'fighting efficiency': under his direction, the Royal Navy underwent a radical restructuring that had enhanced preparedness as its one essential aim. As he explained in his manifesto for reform, which, with characteristic lack of modesty, he entitled *Naval Necessities*, the purpose of the major organizational changes he advocated was 'Absolute Instant Readiness for War'.¹⁰ Lest anyone fail to understand the importance of this object, this phrase was printed in double height characters with italics for additional emphasis. Why this particular concentration? For Fisher, attaining the highest possible state of preparedness was

⁹ Ivo N. Lambi, *The Navy and German Power Politics, 1862–1914* (London, 1984), 272.

¹⁰ *Naval Necessities* I, p. 20. The National Archives, Kew, United Kingdom [hereafter TNA], ADM[italy files] 116/3092.

undoubtedly a desirable goal in its own right, one worth achieving irrespective of the identity of Britain's main adversary; however, in focusing so clearly on one this particular outcome, Fisher would have been well aware, given Tirpitz's decision not to make combat readiness a key objective, that reaching peak fighting efficiency would confer huge advantages over Germany. Intelligence reports from Berlin regularly emphasized the structural weaknesses in war readiness that were the inevitable consequence of the German Navy's undoubtedly cheap, but nevertheless labour intensive system of providing trained personnel for its warships. In particular, the fact that the conscripted recruits, who formed the majority of crews, served for a total of only three years meant that at just the point when they had attained the requisite skills in seamanship to be really useful on board ship they were discharged back into civilian life and replaced *en masse* by new recruits devoid of nautical bearing. The result, as one British naval attaché reported, was that 'so great are the consequent number of changes of men that occur in the crews in October that there are many German Naval Officers who frankly state that their ships are not true fighting assets from October to February of each ensuing year and that their ships only attain their real value from May to October'.¹¹ It was, the same attaché explained on another occasion, a 'factor of inefficiency' that could 'never, under the conditions obtaining in Germany, be wholly removed'.¹²

The leadership of the German battle fleet not only shared this assessment, but actually took it a stage further. As they regularly complained, one of the direct outcomes of Tirpitz's policy priorities—especially the focus on *matériel* over personnel—was that it rendered the forces at their disposal ready for war a mere four months in every year.¹³ It is little wonder, therefore, that when, in the wake of Fisher's reforms, Arthur Lee, the Civil Lord of the Admiralty, publicly paraded the Royal Navy's advantages in combat readiness by proclaiming that, in the event of an Anglo-German war, Britain 'would get its blow in first, before the other side had time to read in the papers that war had been declared', it caused such consternation in Germany.¹⁴ Fear of a surprise attack—what Jonathan Steinberg has labelled the 'Copenhagen Complex'¹⁵—reflected an acute awareness that the Royal Navy had focused on maximizing the war preparedness of their fleet, whereas the German Navy had not. This was an aspect of the naval race that Britain was clearly winning.

The one (and, it should be added, only) time that the Royal Navy's confidence in its inherent superiority in war preparedness was shaken came in early 1912. At this juncture, Winston Churchill, the newly appointed First Lord of the

¹¹ Dumas, Naval Attaché Report 9/08, 12 February 1908 in M. S. Seligmann, ed., *Naval Intelligence from Germany: The Reports of the British Naval Attachés in Berlin, 1906–1914* (Aldershot, 2007), 151.

¹² Dumas, Naval Attaché Report 34/08, 30 July 1908, in *Ibid.*, 180.

¹³ Dirk Bönker, *Militarism in a Global Age: Naval Ambitions in Germany and the United States before World War I* (Ithaca NY, 2012), 286.

¹⁴ Arthur J. Marder, *From the Dreadnought to Scapa Flow, I: The Road to War, 1904–1914* (Oxford, 1961), 111.

¹⁵ Jonathan Steinberg, 'The Copenhagen Complex', *The Journal of Contemporary History* i (1966), 23–46.

Admiralty, was busily preparing a set of vote-pleasing measures designed to trim back the size of Britain's burgeoning naval estimates and so release funds back to the Treasury for social programmes. In so doing, he blithely ignored the rumours coming out of Berlin (and faithfully reported by Captain Hugh Watson, the British naval attaché there) that proposals were being drawn up by the Reich authorities to 'remedy' the deficiencies in the German short-service system and, by so doing, make 'the High Sea Fleet efficient all the year round'.¹⁶ Churchill was, therefore, caught entirely unprepared when the details of the new German *Novelle*, a series of proposed amendments to the country's naval law, came into his hands in early February. The bombshell these contained was not the small increase in the number of battleships that it was proposed to add to the German construction schedule, an alteration that was both minor in extent and had, in any case, long been anticipated; rather it was the intention to improve the fighting power of the fleet through a dramatic addition in long-service naval personnel—15,000 extra officers and men—and a consequent enhancement of the number of ships kept in permanent active service. As Churchill informed his Cabinet colleagues:

The main feature in the new law is the extraordinary increase in the striking force, of ships of all classes, immediately available throughout the year. Whereas we now reckon against 17 battleships, 4 battle cruisers, and 12 small cruisers in the active battle fleet, demobilised to a great extent during the winter months, we must in future prepare against 25, 12, and 18, which are not to be subject to anything like the same degree of temporary demobilisation.¹⁷

In short, as Churchill further explained, it was 'the increase of personnel and the increases in the vessels of all classes maintained in full commission' that made the new legislation a 'development of the very highest importance', as it effectively 'amounted to putting about four-fifths of the German Navy permanently on a war footing'.¹⁸ It did not take a great leap of the imagination to conclude that this was a direct and troubling assault on what had hitherto been the Royal Navy's greatest advantage, its superior efficiency and higher state of general readiness.

This, of course, was exactly the intent of the German measures and reflected the fact that, after the fiasco of the Second Moroccan Crisis, the balance of power had started to shift in the German naval hierarchy. Tirpitz's emphasis on the political needs of the distant future, which had for so long carried the day, suddenly seemed less important than rectifying the immediate sense of vulnerability, just exposed by the recent war scare, entailed in having a fleet whose readiness was so clearly below that of its most likely adversary. The *Novelle*, thus, incorporated the demands of the fleet leadership, the so-called 'front', for a new emphasis on war preparedness as opposed to a simple increase in battleship numbers, which would have been Tirpitz's main preference.

¹⁶ Watson, Naval Attaché Report 34/11, 30 November 1911. Seligmann, *Naval Intelligence*, 344.

¹⁷ Memorandum by Churchill, 14 February 1912. TNA, ADM 116/1294B.

¹⁸ Churchill, 'Admiralty Memorandum on New German Naval Law', 9 March 1912. TNA, ADM 116/1294B.

The fear that the *Novelle* heralded a change in German naval policy spurred the British Admiralty into action. Churchill's putative budget-trimming measures were swiftly jettisoned and, as is well known, ways were found to keep ever more British vessels in full commission in home waters. However, much to the Admiralty's relief, the German challenge in war preparedness did not prove nearly as testing as had been feared. As events were to show, it was one thing to plan an increase in naval personnel, but it was quite another to bring this into effect, especially if the desired additional manpower was in specialist areas like petty officers, engineers, or higher technical ratings. As early as mid-1912, the Imperial Navy Office was forced to admit that the navy was so short of engineers and recruitment was so lagging behind that it would be years after Tirpitz's shipbuilding programme was completed before the fleet would have its full complement of these essential crewmen.¹⁹ The British were well aware of this. A careful monitoring of the German press by the ever watchful Naval Intelligence Division revealed that, notwithstanding the provisions of the *Novelle*, the High Seas Fleet suffered from severe shortages in trained crews and was likely to do so for some time.²⁰ The result, as Churchill gleefully recorded, was to derail German efforts at increased readiness. There would, he noted while preparing the British naval estimates for 1914–15, be 'three less German ships in full commission [...] than we expected', allowing the corresponding planned increases in the Royal Navy to be scaled back by the same proportion.²¹ This not only represented a very welcome cost saving; it also underscored that the British advantage in war preparedness, which had momentarily seemed in jeopardy, remained perfectly secure.

The emphasis on enhanced readiness was not the only precept that Fisher brought to bear on the Anglo-German naval race; another of his doctrines concerned the importance of continuous one-upmanship when it came to the specifications and design capability of the navy's future warships, a process that Fisher referred to as 'plunging'. This stress on always going one better with the next generation of naval assets was, in fact, one of the admiral's longest held and most consistently maintained beliefs. He had informed Nathaniel Barnaby, the well-respected Director of Naval Construction, as early as January 1883 that 'there is no progress in uniformity'. The 'right' thing to do, he asserted, is 'to make each succeeding ironclad an improvement [on its predecessors] and as perfect as you can'.²² Barnaby was sceptical. As Britain of all the sea-faring countries had made the greatest capital investment in its fighting fleet, it was the nation that would suffer both the greatest

¹⁹ Holger H. Herwig, *Luxury Fleet: The Imperial German Navy* (London, 1980), 90.

²⁰ War Staff, Intelligence Division, 'Germany: 1. Shortage of Engineers; 2. Warrant and Petty Officers', 26 February 1914, TNA, ADM 137/3849. See also 'Press Reports bearing on Shortage of Personnel (Chiefly Higher Ratings)', undated [internal evidence suggests April 1914] in Naval Historical Branch: Historical Section of the Naval Intelligence Department volume 540, 'Miscellaneous I', ff.190–1.

²¹ Minute by Churchill, 17 February 1914. Admiralty Library, No.24 Store, HM Naval Base, Portsmouth: First Lord's Minutes, Third Series—December 1913 to June 1914.

²² Fisher to Barnaby, 25 January 1883, in Arthur J. Marder, ed., *Fear God and Dread Nought: The Correspondence of Admiral of the Fleet Lord Fisher of Kilverstone* 3 vols. (London, 1952–9), i, p. 114.

financial write downs should any innovations cause existing assets to become obsolete and the greatest additional expense should those assets thereby need replacing. A steady reactive approach rather than an adventurous pro-active policy, therefore, seemed to him self-evidently preferable. Many agreed, with the result that prior to Fisher's assumption of the post of First Sea Lord, the British naval leadership had frequently been wary of, if not downright hostile to pushing the pace of change when it came to ship design.

Fisher, never one to be impressed by conventional wisdom, turned this analysis on its head: far from benefiting from a policy of impeding the progressive development of warship capabilities, he argued that it was profoundly in Britain's interests to see a continuous stream of year-on-year qualitative and/or technological improvements in this very sphere. The logic behind this seemingly counter-intuitive proposition rested on the enormous competitive advantage conferred on the Royal Navy by the sheer scale, productive power, and speed of construction of the nation's shipbuilding and marine engineering industries. Due to the depth of its manufacturing base in these areas, Britain could both turn out warships in greater numbers than any other country and also build those ships more rapidly than any other country. For Fisher this meant that, of all the naval powers, Britain was the only one that need not fear change. If increases in the size, speed, or combat power of new fighting vessels rendered existing ones obsolete, the Royal Navy, unlike its competitors, could always rely on the fact that the redundant ships could be replaced quickly and efficiently. While this might incur some expense, this disadvantage was more than offset by the fact that, in setting the pace of change, the Royal Navy gained the automatic pole position that came from being the first to innovate. As Fisher explained: 'The whole secret of Admiralty success is "plunging"—it stupefies foreign Admiralties. You get a great lead, and a stern chase to pick up is *Hell!*'²³ And that was not its only advantage. While it was certainly true that some older British warships would be rendered out-of-date by such 'plunging', the more crushing fact was that it was the very newest vessels in the fleets of Britain's rivals that would be afflicted by premature obsolescence. Again, Fisher summarized the situation:

You see all your rivals' plans fully developed, their vessels started beyond recall, and then in each individual answer to each such rival vessel you plunge with a design that is 50 per cent better knowing that your rapid shipbuilding and command of money will enable you to have your vessel fit to fight as soon if not sooner than the rival vessel.²⁴

In short, because of Britain's unsurpassed naval-industrial complex, revolutionary escalations in warship design would disrupt the long-term planning of foreign powers far more significantly than they would add financial burdens to the Royal Navy, which as the agent of change would always be forewarned about forthcoming advances and would always, therefore, start with an advantageous lead in

²³ Fisher to Churchill, 30 December 1911, in R.S. Churchill, ed., *W.S. Churchill* (London, 1969), companion vol. ii, p. 1365.

²⁴ Fisher to Churchill, 13 February 1912, in Marder, *Fear God and Dread Nought*, ii, 431.

them. Consequently, for Fisher competitive technological one-upmanship was not to be feared; rather it was an asset positively to be embraced and utilized as much as possible in any arms race.

Given the strength of his belief in it, it is not surprising that Fisher's tenure as First Sea Lord began with the prime example, if not the very acme of plunging. HMS *Dreadnought*, the world's first all-big-gun single-calibre turbine-powered battleship, had been conceived by Fisher prior to his appointment. Indeed, the general specifications of the ship can be found in the Admiralty House papers, the advance blueprint for his manifesto *Naval Necessities*, which he drew up while Commander-in-Chief at Portsmouth.²⁵ Hence, it is little surprise that no sooner had he become the Royal Navy's professional head than he started putting this idea into practice. A Committee on Designs was promptly set up to oversee the finer details, and its report very quickly led to the laying down and rapid construction of this revolutionary vessel.

Bigger, faster, and more heavily armed than any previous warship, *Dreadnought* represented a major advance in the battleship type—a fact underscored by the new vessel's distinctive appearance, which seemed deliberately formulated to set it apart from its predecessors and thus emphasize, even accentuate, the break with the past. And yet for all the iconography surrounding this new wonder weapon—an iconography that caused all subsequent battleships to be referred to in reverential terms as 'dreadnoughts' and all the preceding classes to be casually dismissed as mere 'pre-dreadnoughts'—*Dreadnought's* elevated stature as the world's largest and most powerful warship would be retained for the very briefest of periods. The cause was further 'plunging'. It soon transpired that, alongside its many other remarkable attributes, among the most notable was that *Dreadnought* was not the culmination, but only the very first step in a process of escalating qualitative improvements. Thenceforth, Fisher ensured—both during the years of his own leadership and, courtesy of his enduring influence, in the years thereafter as well—that each new class of battleship was larger and more capable than its predecessor, a fact that can be readily charted in the ever greater displacement of these vessels.²⁶ Thus *Dreadnought* herself, although weighing in at over 2,000 tons more than the *Lord Nelson* of the preceding year's programme, a gain of nearly 13 per cent, was succeeded by the *Bellerophon* class, a group of three ships each of which was 476 tons heavier than the *Dreadnought*. Their successors, the three *St Vincents*, were themselves a further 1,100 tons heavier; the subsequent *Colossus* class then added 330 tons more; the *Orions*, which succeeded them, contributed an additional 2,470 tons; then came the *King George V* class, with a further 460 tons; they were followed by the *Iron Duke* class, which added yet another 3,140 tons; and finally there were the *Queen Elizabeths*, which added in excess of 6,000 tons more. In total, therefore, between *Dreadnought* and *Queen Elizabeth*—vessels separated by a mere eight years—the displacement of battleships rose by over 14,000 tons,

²⁵ The key sections are 'The Fighting Characteristics of Vessels of War' and 'The Guns of the Battleship and Armoured Cruiser' in TNA, ADM 116/942.

²⁶ All figures from Ray A. Burt, *British Battleships of World War I* (Revised edition, Barnsley, 2012).

making the super dreadnoughts, as they were now referred to, of the *Queen Elizabeth* class almost 80 per cent heavier than the original *Dreadnought* and at least 100 per cent heavier than any pre-dreadnought. In this statistic, the sheer scale of Fisher's original vision of continuous escalation in design capability, subsequently adopted and carried forward by Churchill with Fisher's encouragement, becomes evident.

Naturally, 'plunging' on such a scale was not without financial implications. *Dreadnought* may have represented an increase of nearly 13 per cent in displacement over the *Lord Nelson*, but, at £1,783,883 compared to £1,540,939, the monetary increment was the even greater figure of 16 per cent. However, this paled into insignificance compared to the staggering additional cost of the *Queen Elizabeth*. While admittedly the most expensive ship in her class, her eye-watering price tag of £3,014,103 represented an increase over *Dreadnought* of almost 69 per cent and over *Lord Nelson* of nearly 96 per cent. Thus, while the Liberal politician David Lloyd George may have been justified in labelling *Dreadnought* a 'piece of wanton and profligate ostentation', ultimately the ship would prove bargain basement compared to its successors.²⁷

With the unit cost of battleships spiralling upwards, the implications for new construction budgets were naturally considerable. Yet, in financial terms, this was merely one of the ways in which plunging added to the overall burden. Not only were ships increasing in price, but so too was the cost of the equipment they carried. One reason for this was the growing size and power of their weaponry, which pushed up the price of the associated expendables. *Dreadnought*, for example, fitted with a main armament of 12-inch guns and 18-inch torpedo tubes, fired shells that cost £52 each and torpedoes that were initially priced at £540 apiece. The switch to 13.5-inch guns in the super-dreadnoughts of the *Orion* class led to the introduction of ammunition costing £105 a round, an increase of 100 per cent. Meanwhile, the invention of the heater torpedo led to a rise in the price of the ordnance for all existing 18-inch tubes to £708, a 31 per cent increase; while the subsequent adoption of the 21-inch torpedo pushed this up still further to £992, for an additional increase of 40 per cent and a total increase of 84 per cent. Even greater was the escalation in the price of ammunition for secondary batteries. At the outset, most British dreadnoughts carried 4-inch guns for defence against torpedo craft. However, from the *Iron Duke* class onwards bigger 6-inch artillery was mounted. While the former fired a shell costing a little over £2 a shot, ammunition for the latter was over £7 a round, an increase of 338 per cent. Naturally the higher cost of heavier shells had implications across the budget. The amount required in the estimates for gunnery practice, for example, rose by 40 per cent across the period from 1904 to 1912.²⁸

If existing equipment was becoming more expensive, the continuous advance of naval science, which Fisher enthusiastically embraced as part of the plunging

²⁷ Herwig, 'Luxury Fleet', 56.

²⁸ 'Summary of the Draft Navy Estimates, 1913–14, together with an Explanation of some of the Principal Causes of Increase', printed 13 January 1913, TNA, ADM 116/3151.

process, was adding new types of expenditure all across the board. Aeronautics, for example, an item on which nothing at all was spent when Tirpitz first conceived his challenge, had become a major call on resources by the eve of the First World War. A total of £321,600 was allocated by the navy under this heading in 1913.²⁹ Another source of additional cost was the switch to oil fuel. A mere £3,614 was devoted to this commodity in the 1902–3 British Navy Estimates. By 1913 this had grown more than 200-fold to £770,000 and the projection was that by 1916 a staggering £1,750,000 would be needed for acquiring, transporting, and storing this new fuel type. As the bulk of the fleet continued to be coal-powered, there was no comensurate saving in coal to offset this. A similar situation prevailed with regard to wireless telegraphy, which, to use Churchill's words, was 'another new service rapidly developing'. While radio would prove an invaluable tool for naval warfare, wide-scale expenditure covering all points of the budgetary compass was necessary to facilitate its adoption. As the First Lord elaborated:

its expense is increased by every improvement; and every year new classes of ships must be provided with installations, and better quality of installations, while on shore an extensive system of powerful stations is being constructed. A numerous and growing skilled personnel, expensively trained and paid at specialist rates, has had to be brought into existence for these purposes alone.³⁰

And the catalogue of new and expensive developments continued. Fire control, for example, was another such growth area. While instruments for this were few and far between in 1898, a decade and a bit later a new dreadnought might require an extensive list of costly mechanical devices as part of its standard outfit. These included: gyroscopically controlled range-finders; gyro-compasses worked in conjunction with the range-finders; mechanical computers for calculating range, rate of change, and deflection data; Forbes speed logs; apparatus for transmitting range and deflection data such as the so-called 'follow the pointer' sight; director firing equipment; and Eversheds bearing indicators. Furthermore, fitting and working all this equipment required enlarged and improved conning towers, a costly addition to new designs and an expensive alteration to existing ones.

The upshot of all these plunging-related changes was the inexorable growth of the British navy estimates. These had stood at £36.8 million in 1904–5, the year in which Fisher became First Sea Lord. Although regarded as unsustainably high at the time—indeed, Fisher had been appointed because of his willingness to oversee their reduction—by 1913–14 this figure had risen to £48.7 million, an increase of over 32 per cent. Given that Britain had a government committed to reducing expenditure on the armed forces in order to free up resources for social programmes, this was a massive and unwelcome expansion. Nevertheless, the understandable opposition of Chancellor of the Exchequer, David Lloyd George,

²⁹ Churchill and Seely, 'Expenditure on Aeronautics', no date [printed February 1914], TNA, ADM 116/3152.

³⁰ Churchill, 'Summary of Draft Navy Estimates 1913–14', 1 January 1913, TNA, ADM 116/3151.

notwithstanding, it was an affordable rise. The same could not be said for the impact of plunging upon Germany. The *Dreadnought* revolution sent the price tag of German battleships up from 24 million marks for the pre-dreadnought *Braunschweig* class, launched in 1902–3, to 45 million marks for the *König* class, the last German battleships to be completed in time for the start of the First World War. Their successors, the *Bayern* class, large ships designed to match the *Queen Elizabeths*, were each projected to require a staggering 50 million marks. This cost explosion played havoc with Tirpitz's carefully formulated plans. Between 1905 and 1914, the effort to keep pace with the Royal Navy sent the German naval budget up from 233.4 million marks to 478.9 million marks.³¹ This 105 per cent rise in only nine years—much bigger than Britain's 32 per cent increase, due to the fact that the qualitative increase from Germany's much weaker pre-dreadnoughts to dreadnought standard was so much greater than was the case for Britain—was financially ruinous for the Reich, which did not possess the tax base to sustain it, and lent weight to Fisher's contention that the imposition imposed by plunging on Britain would be as nothing compared to the difficulties bestowed on Britain's rivals.

Given the massive escalation in costs, which threatened to put a spoke in Tirpitz's single-metric competition plans, it is not surprising that the Germans were ever eager to reduce, or preferably eliminate, this element of the arms race. If the British could only be persuaded to reduce the size or gun calibre of their warships it would be a 'victory [...] without firing any shot' and 'a blessing', noted the Kaiser.³² Accordingly, informal feelers on this topic were occasionally put out through the press. In February 1914, for example, an article appeared in the *Berliner Tageblatt* arguing that, as it was impossible to reach an arms control agreement on the basis of the numbers of ships, the only solution was one based upon reducing displacements. Germany, it stated, 'would be quite ready to reduce displacements if England leads the way'.³³ The message was as clear as it was futile. With 'plunging' a key component in Britain's strategy for winning the naval race, it is hardly to be wondered that all such attempts to keep qualitative competition to a minimum were fiercely resisted. When, for example, in 1908 Tirpitz made enquiries through a back channel to see if Britain 'would agree to limiting the size of guns and size of ships', Fisher dispatched a forthright rejection: 'Tell him I'll see him d—d first,' he replied by return of post.³⁴ He was no more enthusiastic in 1914: 'Only a d—d fool or a traitor would limit the size of British warships,' ran Fisher's pugnaciously uncompromising minute on this occasion.³⁵

Formal proposals, wherever they came from, fared no better. In the run up to the second international peace conference at The Hague in 1907 arms control

³¹ Herwig, 'Luxury Fleet', 71.

³² Michael Epkenhans, *Tirpitz: Architect of the German High Seas Fleet* (Washington, D.C., 2008), 54; Herwig, 'Luxury Fleet', 89.

³³ Henderson, Naval Attaché Report 9/14, 7 February 1914, in Seligmann, *Naval Intelligence*, 533–4.

³⁴ Fisher to Esher, 21 February 1908, in Marder, *Fear God and Dread Nought*, ii, p. 164.

³⁵ Minute by Fisher, 16 January 1914, TNA, ADM 116/1677.

enthusiasts suggested that not only should the number of warships in service be restricted, but so, too, should the size of future construction. The Admiralty was alarmed and Fisher instructed the then Director of Naval Intelligence, Sir Charles Ottley, to pen an extensive rebuttal of this unwelcome and heretical suggestion. Coming in at fifteen closely printed pages and distributed widely across Whitehall, it was packed with every conceivable objection.³⁶ Buried among these was the fundamental truth that plunging was vastly more inconvenient for Britain's potential enemies than it was for Britain herself. This was especially true for Germany because, unlike Britain, which had plenty of deep harbours with unencumbered approaches, Germany's coastal waters, as the memorandum explained, were inconveniently shallow. As heavier warships meant deeper draughts and deeper draughts produced a requirement for deeper water, Germany's shallow littoral was a barrier to increased displacement. Only by an expensive process of dredging new deep channels, could Germany's naval harbours be made suitable for the larger warships of the dreadnought revolution. Naturally, this added additional expenditure to the German naval budget, further pushing up the already prohibitive costs of competing with Britain. Why, it was implied, would Britain voluntarily agree to steps that would alleviate Germany of this burden? By such means died the qualitative arms control proposals of The Hague conference.

In addition to the budgetary difficulties it imposed on rival powers, another key asset of plunging was that it inspired an overwhelming confidence in Britain that the Royal Navy enjoyed a massive advantage in the quality of its ships and *matériel* compared to its German adversary. Nowhere was this sense of superiority greater than in the question of gun power. The German reluctance to increase the calibre of battleship main batteries, even as the Royal Navy progressively stepped up its own weaponry, meant that the Royal Navy's fleet of modern 15-inch, 13.5-inch and 12-inch-gunned dreadnoughts was ranged against adversaries armed mostly with 12-inch and 11-inch artillery. Surveying the implications in June 1914, Churchill observed that the last three British new construction programmes consisted of fourteen new vessels firing 112 15-inch guns for a total broadside of 215,000 lbs. By contrast, the German Navy was due only four new vessels, whose thirty-four guns had an aggregate weight of broadside of a mere 55,120 lbs. This represented a four-fold advantage for the Royal Navy. Widening the scope to consider the two dreadnought fleets in their entirety, Churchill concluded that the British advantage in firepower was 'approximately equal in strength to the whole German line of battle'.³⁷ It was a comforting thought and one from which Churchill evidently derived much satisfaction. Eager to guard against an unwarranted underestimate of the enemy, the Second Sea Lord, Sir John Jellicoe, attempted to puncture Churchill's assurance by producing a comparison of the two fleets based not upon firepower, but upon the relative displacement of warships of compar-

³⁶ 'Memorandum on: 1. Limitation of Naval Armaments; 2. Limitation of Size of Battleships', 29 January 1907, TNA, ADM 116/866B. The original version, dated 6 December 1906, in TNA, ADM 1/7904, makes Ottley's authorship clear.

³⁷ Minute by Churchill, undated [June 1914], TNA, ADM 116/3091.

able vintage. The startling conclusion he drew from this alternative methodology was that 'it is highly dangerous to consider that our ships as a whole are superior or even equal fighting machines'.³⁸ Jellicoe's was, however, a minority, not to say solitary, view and Churchill was anything but persuaded, making the telling point that if Jellicoe's analysis were true (which he strongly disputed), Jellicoe as a former Controller of the Navy, the officer overseeing *matériel*, could not evade personal responsibility for this reprehensible state of affairs. Churchill might also have added that as Britain was leading the qualitative race and constantly pushing up displacements, there was no group of German warships that was not out-matched, even if annual comparisons of this metric did not always work in Britain's favour. Somewhat ironically, given the later sense that Britain's main inferiority lay in battle cruisers, all British units of this type since 1909 outclassed their German counterparts on Jellicoe's measure. Whether Jellicoe planned to reply to this is unknown: he had not done so by the time war broke out that August. Thus, it can be said that on the eve of conflict the assurance that, courtesy of constant plunging, Britain held an unassailable lead in warship design and naval technology and outclassed Germany as a consequence was nigh universal; and this was not just in Britain.

Among those with the deepest concern that British ships were the more powerful were some key members of the German establishment. The most prominent of these was the Kaiser. Although he ultimately sanctioned all the ship designs Tirpitz placed before him, in private Wilhelm had long railed against the comparative weakness, as he saw it, of German naval vessels. During the early years of the twentieth century this had led the emperor to become a convinced advocate for larger and faster warships, proposals for which he regularly sent to the Imperial Navy Office. A particular *idée fixe* was the concept of the *schnelle Linienschiff* or fast ship of the line, a pet project that in some respects anticipated the battle cruiser that Wilhelm attempted to foist on a reluctant Tirpitz on almost every possible occasion. As such, it was a source of much friction between them in 1903 and 1904. The German switch to the building of dreadnoughts, involving as it did a considerable rise in displacements and firepower, suited Wilhelm's inclinations and so momentarily eased the debate between the emperor and his state secretary. However, as British ships progressively increased in size, displacement and gun calibre, so the Kaiser's interest in larger and more powerful vessels gradually resurfaced: 'Since we have excellent engineers, technicians, and officers, why are we always behind?' he demanded of Tirpitz in the summer of 1912.³⁹ Stung by this remonstrance, Tirpitz strongly re-affirmed his philosophy of emphasizing quantity over quality: 'Our principle,' he told the Kaiser, 'should be here is the weapon, make use of it.' And in a most unfortunate analogy he compared the situation in 1912 to that of 1870 when the Prussian Army had prevailed over France despite the marked superiority of the French Chassepôt rifle over the German needle gun. Wilhelm was incensed: 'As supreme warlord I could never

³⁸ Minute by Jellicoe, 14 July 1914, *ibid.*

³⁹ Kelly, *Tirpitz and the Imperial German Navy*, 346.

tolerate such a standpoint. Only the best and newest weapons are good enough for my fleet,' he stormed.⁴⁰ The leaders of the fleet felt likewise and expressed considerable dissatisfaction with the *matériel* Tirpitz bestowed on them. 'Either the ships of the Navy Office are fast, and then they have insufficient firepower. Or they have good artillery on board, and then they are not fast!' wrote an exasperated Admiral von Holtzendorff in a passage indicative of the divide within the German Navy over the need to respond to the constant design improvements foisted on Germany by the British Admiralty.⁴¹ It was a division never properly reconciled. The front might have wanted better ships, but in the quest for greater numbers Tirpitz would not provide them. Hence the German sense of inferiority never went away.

The British refusal to compete with the German Navy solely on the single metric of ship numbers, instead making war readiness, technological progress, and design enhancements integral additional elements of the arms race threw all of Tirpitz's carefully crafted plans into confusion and, as has already been explained, sent the cost of competition to stratospheric levels. The reality of this situation would take a while to sink in—not least because it was an unpalatable truth that the naval leadership, in true ostrich mode, wished to deny—but, when reality finally dawned, the consequences for the German Navy would prove severe. Following the 1912 *Novelle* money for the further development of German maritime power dried up, as the shock produced by the Second Moroccan Crisis in 1911 focused the attention of the Reich government on deficiencies in the army rather than the navy. From now on, military spending would be the priority. In the short term, this made it difficult even to fulfil the provisions of legislation already passed. To achieve this, wrote Tirpitz's deputy, Admiral Eduard Capelle, it would be necessary for the 'greatest restraint [to be] exercised in all areas'.⁴² In the longer term, lack of resource meant that additional naval expansion ceased to be an option. Thus, a new *Novelle* that Tirpitz had hoped to bring forward in 1913 in order to accelerate the construction of capital ships, had to be dropped in the face of determined opposition from the Chancellor and the Imperial Treasury; while appeals to the Kaiser for extra funds now fell on deaf ears. All of this reflected the priority now accorded to the army. To make matters worse, in the same period funding for the Royal Navy seemed to lack the same constraints. Indeed, owing to Lloyd George's 'People's Budget' of 1909, the British state successfully broadened the fiscal base of its tax system, thereby providing the funds that consistently allowed Britain to authorize twice as many new ships as Germany. The net consequence of this disparity was to engender a growing sense that the arms race with Britain had been lost: 'The English can, and always will be able to build twice what we can,' wrote Chancellor Bethmann Hollweg's close advisor, Kurt Riezler, in 1914.⁴³ As a civilian and known critic of Tirpitz, Riezler could be ignored, but even within the German naval leadership there was a realization that defeat beckoned. 'The English navy

⁴⁰ Michael Epkenhans, ed., *Albert Hopman: Das ereignisreiche Leben eines 'Wilhelminers' Tagebücher, Briefe, Aufzeichnungen 1901 bis 1920* (Munich, 2004), 235.

⁴¹ Herwig, *Luxury Fleet*, 201.

⁴² Bönker, *Militarism*, 287.

⁴³ Herwig, *Luxury Fleet*, 91.

has so strongly developed that [...] the whole foundation of our fleet policy is endangered,' exclaimed Capelle in a draft memorandum written in May 1914 in preparation for an audience between Tirpitz and the Kaiser.⁴⁴ Capelle blamed this desperate situation on the 'extraordinarily active, energetic and politically influential Churchill', whose strong response to the 1912 *Novelle* had negated its provisions, but the reality was that the bankruptcy of German naval policy was intrinsic to the German plans themselves: Germany did not possess the capacity to embark upon a naval arms race with Britain fought on both quantitative and qualitative terms.

If German plans were ultimately frustrated by the tactics Britain adopted, it should be said that it is by no means certain that Germany would have fared better had Tirpitz's initial assumptions about relatively static battleship costs proven accurate and had Britain conformed to Tirpitz's desires and embarked upon a purely quantitative race. Indeed, there are good grounds for thinking that the Royal Navy would still have possessed the decisive edge, as Britain, unlike Germany, had recent experience of competing in and winning a numerical naval arms race. The latter decades of the nineteenth century had been a period of intense rivalry between Britain and her then opponents, France and Russia. As a result, the Royal Navy had found itself in a continuous struggle to keep ahead of the combined naval programmes of these two powers. And it had succeeded.⁴⁵ Although the cost had been considerable, across two decades Britain had built enough battleships and armoured cruisers to ensure that the officially sanctioned policy of being 'strong enough to beat France and Russia for certain' had generally been maintained.⁴⁶ If this could be achieved against such long-standing maritime powers as France and Russia, there is every reason to believe that it could also have been achieved against Germany. The counter-factual proposition, therefore, is that the stress on war preparedness and technological advance that Fisher and his successors adopted was not necessary to the British victory in the naval race; this was merely a tactical choice about the best way to discomfort the opposition. As such, it was eminently successful.

This success can be measured in several ways. Firstly and most obviously, there is the German admission, previously referred to, that by 1914, if not 1912, the naval race had been lost. This was a remarkable achievement: it had taken two decades for Britain to bring France and Russia to the point of defeat, a result that was visibly underscored by, but was in no sense dependent on the Russo-Japanese War; the German challenge was seen off in one.

For the British, however, there was another key indicator of how successful their tactics had proven to be. Naval competition with the German Empire could have taken many forms, but the dreadnought arms race locked Germany into a

⁴⁴ Capelle, 'Notes for an Audience', 17 May 1914, in Freiburg im Breisgau, Germany, Bundesarchiv-Militärarchiv [hereafter BA-MA], Tirpitz Nachlass, N253/29.

⁴⁵ Matthew S. Seligmann, 'Britain's Great Security Mirage: The Royal Navy and the Franco-Russian Naval Threat, 1898–1906', *The Journal of Strategic Studies* 35/6 (2012), 861–86.

⁴⁶ Minute by Selborne, 27 September 1901, in Arthur J. Marder, *The Anatomy of British Sea Power* (New York, 1940), 463.

type of struggle that for Britain was both easy to manage and held few terrors. The simple fact was that battleship building was an area of British strength. Given Britain's highly advanced and very capable naval-industrial complex, so long as the British government was prepared to allocate the necessary funds for new construction—and it was, albeit unenthusiastically—Germany's battle fleet was always destined to be outnumbered. Hence, throughout this period, there existed a widespread British anticipation that should war come, the German fleet would either have to cower in harbour or, if it dared venture out, quickly succumb to defeat in battle. For this reason, as one of Britain's most experienced and highly rated naval grand strategists explained, there was little reason to worry about it: 'I do not think,' wrote Rear Admiral Sir Edmond Slade, a former Director of Naval Intelligence and an important behind-the-scenes player in naval policy development, 'that we are in any danger [...] [as] we can easily keep such strength as will prevent Germany from doing us any serious harm in Home waters.'⁴⁷ Others concurred. Former home fleet commander, Admiral Sir William May, for example, was not at all perturbed about the prospect of engaging the Germans; rather what concerned him was that their forces might decline to fight. In that eventuality, a dedicated strategy would be needed for luring this reluctant opponent out of port. His proposal was to target German merchant shipping, an action which, by being vexatious to the civilian population, would create so strong a 'public feeling' in Germany that 'the German war fleet will be forced to come out and give battle'.⁴⁸ May's proposal echoed official policy. As Sir Henry Jackson, the Chief of Staff, disclosed a mere three months later, the navy's war plans were 'directed against Germany's merchant marine, with the hopes that sufficient pressure can be brought, through dislocating her trade, for the German Fleet to seek action with ours, and so end the struggle'.⁴⁹ Clearly Jackson had no doubts about the outcome. It is equally evident that, without such a lure, he did not believe that the German fleet would risk battle.

If, as seems clear, German battleships held few terrors for British admirals, what did disturb many of them, Slade especially, was the prospect that the German naval leadership might abandon its concentration on this area of British strength and refocus instead on exploiting an area of British weakness. Specifically, they were concerned that the German naval leadership might realize the British vulnerability to the interdiction of the nation's food supplies and adopt the far more obvious and, to Slade, self-evidently more dangerous strategy of attacking British trade. What made this especially worrying was the belief of the British Naval Intelligence Department that the Germans were in an excellent position to undertake a campaign based upon this principle. Possessing the world's second largest merchant marine, Germany could, by the simple expedient of arming some of its numerous civilian vessels, create a swarm of commerce raiders spread

⁴⁷ Slade to Asquith, 8 May 1909, TNA, CAB[inet Papers] 16/9B, Appendix 36.

⁴⁸ May, 'Proposed Disposition of the British Fleet in the Event of War with Germany Alone', December 1912. Marder, *Dreadnought to Scapa Flow*, I, 381.

⁴⁹ Jackson, 'Remarks on War Plans and the First Lord's Notes on the Subject', 11 March 1913, TNA, ADM 116/3412.

out across the global trade routes. The moment a war started, these could be directed to drive British shipping from the seas. Such a strategy, Slade feared, if undertaken vigorously, would 'paralyze our trade in all those regions where it is difficult for us to give adequate protection under the present disposition of our fleet' and thereby cause sufficient domestic discontent to jeopardize Britain's ability to wage war.⁵⁰

This was an alarming analysis, but what made it even more troubling was that a German assault on British commerce, especially one conducted by converted merchant vessels, would not be at all easy to counter. In the years after 1901, when this prospective strategy first came to the attention of the Naval Intelligence Department, considerable effort was expended on seeking a means to secure British trade from this menace. As war loomed in 1914, the Admiralty had already spent funds subsidising the Cunard line to build fast liners for conversion into hunter-killers that could track German raiders; it had also constructed dedicated warships for this purpose; it had sought to bring about a change in the international legal system to outlaw this practice; and it was in the process of arming select British merchant vessels for self-defence and creating a global intelligence and reporting network to track and report the movements of German raiders.⁵¹ None of this was simple or cheap. Yet, just how much more costly and more complex it would be if Germany devoted all its energies to this form of warfare was a matter of obvious concern.

Fortunately for the Royal Navy, Slade's analysis, based on what he would have done were he in charge of German strategy, although it closely matched the thinking of the German Admiralty Staff, whose members regarded an assault on British commerce as a promising proposition, did not find favour with Tirpitz. Only very occasionally and with marked reluctance did the State Secretary agree to release funds for this purpose, and even then no more than the absolute minimum. Instead, he remained fixated on battleships. In this way, he invested heavily in a form of warfare that, as the First World War would demonstrate, could easily be contained and, as a consequence, he neglected Germany's capacity to mount a *guerre de course*, a strategy that might have caused the British Admiralty serious problems. It is hard to see how he could have played more directly into British hands. Germany's defeat in the naval race was, therefore, hardly surprising.

Losing the naval arms race was more than just traumatic for Germany: it had dangerous consequences. In the period when it was believed that the Tirpitz Plan would work, the German Navy acted as a voice for restraint in the Reich government. Tirpitz required at least two decades of uninterrupted peace to complete his construction programme and so, following the passage of the first navy bill in 1898, he argued consistently against any foreign policy initiative that might provoke conflict. This self-interested pacific tendency evaporated once it was clear that the arms race was lost. The alternative facing the naval leadership was now either

⁵⁰ Slade to Asquith, 8 May 1909, TNA, CAB 16/9B, Appendix 36.

⁵¹ Matthew S. Seligmann, *The Royal Navy and the German Threat 1901–1914: Admiralty Plans to Protect British Trade in a War against Germany* (Oxford, 2012).

to acknowledge the bankruptcy of their efforts, an approach that would leave them with the humiliation of a failed naval policy, or to seek to attain Germany's goals by war while it was still conceivable, if only just, for the navy to play a part. Acknowledging the failure of his life's work held no appeal to Tirpitz, who therefore gravitated quite naturally to the latter option. As he stated in October 1913 in a speech that made clear the extent of his volte-face, it would be 'more honourable for a great nation to fight for the highest goal and perhaps to go down instead of ingloriously renouncing the future'.⁵²

This new belligerency came with a timetable. At one end of the calendar, war was to be avoided until the navy's key infrastructure project, the widening of the Kiel Canal, had been completed, for only then could German dreadnoughts travel easily and safely between the Baltic and North Seas. This vital consideration meant that the summer of 1914 was the earliest possible date for a conflict, a point Tirpitz emphasized at the infamous 'war council' in Potsdam on 8 December 1912. Equally, however, the disparity in British and German building rates meant that it was vital not to delay too long thereafter, lest the balance of power be tipped too far in the Royal Navy's favour by the flood of new construction taking place in British yards. Hence, just as there was a 'window of opportunity' in the land armaments race—which prioritized the moment when German military power would, relatively speaking, be at its greatest extent—so there was a comparable 'window' in the naval race, in this case focused on the point when Germany's disadvantage would be at its relative minimum. This naval window fell towards the close of 1914.

These dates and the reason for them were known to the British naval leadership. Captain Philip Dumas, a former British naval attaché in Berlin, advanced a well established proposition when he predicted to Churchill in January 1912 'that nothing would induce Germany to fight [...] until the Kiel Canal was finished'.⁵³ Equally, Jellicoe's assertion that Britain could not afford to relax its efforts in 1914, 'because at the end of 1914 and the beginning of 1915 the British Fleet will be relatively at its weakest as compared to the German Fleet', reflected the Admiralty's consciousness of the strategic horizon.⁵⁴ As it transpired, neither of these warnings proved misplaced. War broke out at the very moment when the Kiel Canal had been completed and the German Navy was at its closest in size to the Royal Navy.

In his 2001-exposition on defensive realism, John Mearsheimer argues that states do not 'start arms races that are unlikely to improve their overall position'. He then elaborates: 'If launching an arms race is unlikely to leave the initiator in a better strategic position [...] it will sit tight and wait for more favourable circumstances'.⁵⁵ Such rational behaviour was conspicuous by its absence in the case of the Anglo-German naval race. Tirpitz's decision to embark upon a competition in battleship building with Britain locked Germany into an unnecessary and

⁵² Bönker, *Militarism*, 89.

⁵³ Matthew S. Seligmann, *Spies in Uniform: British Military and Naval Intelligence on the Eve of the First World War* (Oxford, 2006), 194.

⁵⁴ Minute by Jellicoe, 19 September 1913, TNA, ADM 116/3151.

⁵⁵ *The Tragedy of Great Power Politics* (New York, 2001), 37, 76.

unwinnable conflict. The futile quest to attain success despite the growing number of hurdles placed in Germany's path not only meant that Germany gained little from all its exertions; it actually ensured that the nation's strategic position was seriously weakened. For the outlay of billions of marks, Germany obtained naval assets that—come the test of war—it would largely be unwilling to deploy for fear that to do so would guarantee their destruction. At the same time weapons systems that might have proved useful were starved of funding to feed the ravenous but ultimately pointless moloch of Tirpitz's devising. It was the worst of all worlds and its achievement had not come cheap.

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