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The Failure of the Risk Theory and the Tirpitz Plan: An Introduction to the Reasons Behind

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Abstract. *Alfred von Tirpitz helped the Imperial German Navy to build a sizeable fleet in the first decade of the 20th century to use as the deterrence against Britain in the coming conflicts, a goal that would ultimately fail for due to the internal deficiency of his naval theory named Risk Theory.*

This article discussed how the theory failed to incorporate technological innovations developed after the formation of itself: Including the rapid increase in the need of an ocean-going fast response fleet, and the growing capability of coastal defence flotilla composing of torpedo crafts like submarines and destroyers. It relied too heavily on the German ship building capacity, which was not comparable to British and Canadian ship building industry then. Even though the plan did adopt many innovative designs like the dreadnought battleships, by building a conventional battlefleet incapable to outrun its enemy to have the choice over the battlefield locations and enemies, the Tirpitz plan failed offer a threat dangerous enough as an indefensible deterrence.

Tirpitz fail to realize the capability of fleet concentration of the Royal Navy and Dominion Navies, which would offer significant numerical superiority to the British side in an open battle. And according to relevant theories on the exchange rate, larger fleet would enjoy far less casualty in war, further belittling the threat post by the German Navy.

It is also discussed in the article how Tirpitz failed to understand the social context in Great Britain and its Empire, where the naval strength was constantly seen as a symbol of nation and cultural pride. A concession realized through naval deterrence is highly unlikely to be accepted by the public, which in turn becomes unacceptable for the Parliament and Admiralty. A naval race is unavoidable in this situation and great resources would be consumed for the Reich, resources that could be effectively used for the Army or civil purpose.

Keywords : *Anglo-German Naval Race, Risk Theory, Tirpitz Plan.*

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By the end of the 19th century, Great Britain and its Empire had the largest merchant fleet in the world and some arguably best-positioned overseas ports, protected by the largest war fleet of among the major navies. The Royal Navy had by this time grown into a titanic global presence after the Napoleonic Wars and with many sought to challenge it with their own fleets for the control of the seas. The most influential and possibly successful among them is Alfred von Tirpitz, who devised the famous Risk Theory in the 1890s. He aimed ambitiously to turn the small flotilla of Kaiserliche Marine into a war armada large enough to form a naval deterrence, posing enough threat to British naval supremacy and maritime commerce to avoid an Anglo-German confrontation in the next European war. In his theory, he believed that while unlike Britain, Germany did not need a large fleet for home defence or continental offensive; the sizable fleet would nevertheless protect the Reich by making it too "risky" for the British to side against Germany because of the potentially destructive naval conflicts[1]. Exercised in the so-called Tirpitz Plan from 1898 to 1912, the Risk Theory and Tirpitz himself became the symbol of Germanic naval-maritime policy till possibly the very end of 1916.

But instead of seeking concession to the Germans, British soon launched its own hugely increased naval construction plans and concentrated its overseas fleets back to Europe. Until 1912, Great Britain had eased the tension with most of their geopolitical rivals with a series of agreements: The Anglo-Russian Entente and Convention in 1907, The Entente Cordiale in 1904, the Anglo-Japanese Alliance since 1902 and the so-called Anglo-American Great Rapprochement of a series of pro-American diplomatic supports since 1895[2]. Rather than a British cooperation or guarantee of non-interference, the Risk Theory brought the Reich the full attention and hostility of the British and their Empire.

The tragic failure of Alfred von Tirpitz naturally became a topic for historians. Although the exact reasons for this theory to fail have been a subject of debate till now, its failure to incorporate naval innovations at the time and incapability to understand the broader social-political impossibility of a British cooperation stand out as the most important factors. Specifically, while it is not entirely impossible to form a naval deterrence at the time, Tirpitz certainly tried for one in the worst possible way: He sought to challenge the British navy in an open fleet action with Battleships, which is the easiest way for the Royal Navy to device a countermeasure and hardest way for the British public to accept as a pure defensive deterrence.

To understand Tirpitz' failure to best utilize naval innovations, one must first understand that the Tirpitz Plan was formed in the last days of the Victorian Era. Until the 1890s, many revolutionary technological developments had already reshaped the maritime commerce as well as naval warfare several times in the century. The very first of these world-changing developments was the explosive

[1] Rolf Hobson, *Imperialism at Sea: Naval Strategic Thought, the ideology of Sea Power, and the Tirpitz Plan, 1875-1914* (BRILL, 2002), 1.

[2] D.C.M. Platt, "*The Great Rapprochement: England and the United States, 1895-1914*," Hispanic American Historical Review 1, no.1 (February 1969): 202

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increase in the use of steam engines and metal hulls in large ships from 1850 to 18703. Steam ships sailed faster, further and did not rely to wind or human power to move, pushing the capability of maritime communication to a new height.

Evidently, the increase in the capability of ships encouraged the subsequent increase in ship building, focusing on the new designs. Yet other factors played their parts too: Although wood became more expansive, steel price remined low for the best part of 1850s and 1860s in Britain, and further declined in the 1870s and 1890s. Ship price declined as a result4. In addition, the expansion of the colonies, following growth in the market size, and a highly successful anti-pirate campaign within the Empire also contributed to flourishing maritime trades: Royal Navy founded Australian Station in 1859 and China Station in 1861, a symbol of the finalization of the command structure in the even most remote part of the Empire5. Permanent naval presence ensured a greater anti-piracy capability, and the significantly faster steam ships themselves became the best way to avoid pirate contact6, gradually securing the safe reach to Chinese market, as well as Malayan and Australian resources. All these contributed to British sea-bound trades and made sure its prominent position among other countries. Britain and its Empire, mainly Canada in term of shipbuilding, managed to retake much of the market from the United States in early 1870s7. By the time of 1892 to 1899, British shipbuilding contributed seventy-five per cent of the world: It has more workers than the combination of Germany and the United States, with each worker more effective than the workers in either country8, providing their merchant fleet cheaper and better ships than foreign competitors.

While a large merchant fleet was not necessarily a negative change in nature, the gigantic merchant fleets became a disaster for the Royal Navy. As the British reliance on food and resource input dramatically increased, attack on the trade lines instead of direct amphibious assault on British Home Isles became the major threat and a large merchant fleet meant the Navy needed more ships for its defence9. The dare needs of more ships existed long before this period and the traditional solution was to form blockades to force a battle near enemy ports. Since the Napoleonic

[3] Charles K. Harley, "*British Shipbuilding and Merchant Shipping: 1850-1890*," The Journal of Economic History, no.1, vol. 30 (Mar 1970): 262

[4] Harley, 263, 266.

[5] Barry M. Gough, "*The Records of the Royal Navy's Pacific Station*," The Journal of Pacific History, vol.4 (1969): 147.

[6] A.D. Blue, "*Piracy on the China Coast*," Journal of the Hong Kong Branch of the Royal Asiatic Society, vol.5 (1965): 75.

[7] Harley, 262.

[8] Edward H. Lorenz, "*An Evolutionary Explanation for Competitive Decline: The British Shipbuilding Industry, 1890-1970*," The Journal of Economic History, no.4, vol.51 (December 1991): 914-915.

[9] M.S. Partridge, "*The Royal Navy and the End of the Close Blockade, 1885-1905 A revolution in Naval Strategy?*" The Mariner's Mirror, no.2, vol.75 (1989): 119.

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Wars, the Royal Navy had been relying heavily upon their blockading strategies to stop French war fleets and merchant fleets to reach the open ocean, effectively avoiding having to protect very British ship on the high seas[10]. Yet, "blockade" became something significantly more difficult to achieve for obvious reasons: Without the reliance to wind, the steam powered commerce raiders and blockade runners could then literally sail to any direction and became extremely difficult to find even with a large amount of ships in surveillance. It was becoming more and more obvious that a huge hole existed in the Imperial Defence after the 1870s and many naval officers like W.H. Hall or A.T. Dall were keenly aware of it[11]. The deficiencies in their naval capability caused waves of confusions and frustrations, if not fears, among the British Navy and seriously disturbed the overall strategies of the Admiralty: The initial response was to create an improved version of blockade called "the Close Blockade[12]". In order to avoid losing the enemies in sight, this Close Blockade would be placed close enough in every enemy port to react immediately to any attempts of breaking out. Yet, to deploy a fleet this close to a port means facing the powerful coastal guns and torpedo crafts of the defenders, which had then become too powerful to ignore then.

Thus, the second revolutionary technological innovation in naval warfare presents itself: By the time of late 19th century, naval guns and especially torpedo had become significantly more dangerous. For a long period, ships, wooden or steal, were extremely difficult to actually "sink". Ships usually remained afloat after enduring long time bombardment above the waterline. As a result, many in the British Admiralty sought to use smaller, less expensive but less capable capital ships in their supposed "Close Blockade" and use them as expendable moving batteries[13]. Many British capital ships had thus only a low freeboard like the Admiral class in 1880 and Trafalgar class laid down in 1886. These was a fatal mistake and smaller battleships were proven unable to match the coastal guns and sink quickly in front of torpedo attacks. From 1885 to 1888, a series of fleet exercise soon proved the Close Blockade strategy nothing but a disaster as in almost every manoeuvre, the defenders managed to either break out with significant amount of capital ships, or inflict enough damage upon the blockade to force a retreat[14]. The British failed to solve the problem and did not even device an acceptable solution until 1889, when the first class of revolutionary Pre-dreadnoughts battleships, the R class, was ordered. These ships were designed to have significantly higher freeboard and powerful engines to operate in open seas rather than coastal regions, making them capable to defeat the rivals far from the ports without forming any blockade[15]. Essentially admitting that the Navy MUST defend its huge Empire and merchant fleet on high

[10] Partridge, 119
[11] Partridge, 122
[12] Partridge, 121
[13] Norman Friedman, British Battleships of the Victorian Era (Naval Institution Press, 2018)
[14] Partridge, 124
[15] Friedman

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seas, stretching its resources to the very limit in protecting every British ship and hunt down enemy fleets now free from blockades.

The third and last premise of technological innovations before Tirpitz's grand plan was the massive improvements of warships themselves. Once again it was not necessarily a negative aspect but somehow the Royal Navy suffered significant: With a large existing fleet, it would cost much more to upgrade it with new generation of warships than smaller navies like German Navy. To ensure a naval supremacy, the British continuously invent revolutionary ships to outpower old ships, yet only resulted in the continuous need to upgrade their own fleets. They struggled hard to replace the wooden steam ship-of-the-lines with Ironclads in the 1860s and fall behind the French Navy16. Similar struggle occurred in the 1890s when naval race between major powers switched to the Pre-dreadnought Battleships and Armoured Cruisers17. As most navies entered the 20th century with their brand-new Pre-dreadnoughts, they found themselves at a rather equal starting line once again with the Royal Navy. The feared "Black Fleet" of British Ironclads became but a group of outdated old ships with little real threat. Tirpitz saw an opportunity: From 1900, he pressed hard a built up of the fleet to catch up. While British built over 60 Ironclads before 1889, Germans had only 16 smaller ones18. Yet, by the time of around 1908, the British had built a total of 52 Pre-dreadnoughts and the Germans 2419. In 1906, when another revolutionary design to outshine all previous capital ships, the Dreadnought Battleship, was launched, Tirpitz pressed for an even larger building plan to catch up in numbers: the British had 38 Dreadnoughts ready right before the Great War, while the Germans had a total of 24, significantly shortening the number gap20.

Tirpitz built his theory upon all these changes: Although the British fleet was more powerful than ever, the heavier duty to defend a larger Empire, the innovation of torpedo and its denial to blockades, as well as the continuous appearance of new warship designs all showed weakness of the seemingly invincible Royal Navy. Tirpitz carefully calculated the ratio of ships and established two major predictions: First, Germany did not need a fleet as large as the British to achieve the effective deterrence21. In an imaginary open battle, if both fleets suffered significant losses

[16] Angus Konstam, *Paul Wright, British Ironclads 1860-75* (Osprey Publishing, 2018), 11.
[17] Scott M. Lindgren, "The Genesis of a Cruiser Navy, British First-Class Cruiser Development 1884-1909" (Ph.D diss., University of Salford), 15.
[18] Canney, L. David, The Old Steam Navy: The Ironclads 1842-1885 (Naval Institute Press, 2004).
[19] Friedman.
[20] Sir Julian S Corbett, Henry Newbolt, History of the Great War Naval Operations (Longmans Green and co, 1920), vol.1.
[21] Jonathan Steinberg, "*The Tirpitz Plan, review of Der Tirpitz-Plan. Genesis und Verfall einer innenpolitischenKrisenstrategie by Volker R. Berghahn*", The Historical Journal, no.1, vol.16 (Mar 1973): 200.

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and saw a large part of the fleet destroyed, Germans had nothing to lose in the Continental war with France or Russia. While the British, lost its naval supremacy, would have to concede its control of the seas to other rivals like the United States, Japan or Italy. Second, as the Risk Theory continued, the British could not avoid such an imaginary battle should the Germans wanted to. Geologically speaking, if the German fleet sailed directly to the Albion Isles, even London itself, to force a battle, it would be a check move for the Royal Navy to intercept and face them to avoid massive destruction dealt politically and economically.

Yet, as we concluded, a large conventional battle fleet is probably the worst way to establish a deterrence. Technically speaking, a war fleet large enough to directly attack the Royal Navy in the North Sea would be a real threat, yet quite different from the challenges brought by the revolutionary changes in maritime commerce and naval warfare, a large battlefleet sailing toward the British Isles was a threat the Royal Navy knew well how to counter since the Battle of Armada. By building a fleet of slower Pre-dreadnought battleships and later slightly faster Dreadnoughts, Tirpitz essentially chose a fixed location to conduct a conventional battle. If his fleet were to ever actually force a battle, it must attack first upon vital British coastal regions and therefore gave its enemies enough time to prepare, knowing a home defence was necessary. As early as 1904, the British started to investigate their own coastal defence system. Admiral John Fisher proposed a two-step solution to protect the British coastal lines: First, a defensive Flotilla, which is called "Flotilla Defence" would be founded with primarily submarines and fast torpedo crafts. This flotilla would force out the approach enemy fleet and defeat an enemy blockade should they impose one[22]. Then, a new concept of fast warship, later would be the base of Dreadnought battleships and battlecruisers, would be used as the main capital ships of the fleet. It would be mounted great firepower and built with speed to chase down any commerce raider[23]. In the time of a home defence, the Empire would concentrate all its fleets in home water to join the defensive flotilla for a decisive battle. While the concept was preliminary in 1904, the overall strategy before the Great War largely followed the blueprint: The submarines and torpedo craft flotilla was not built until the Second World War but the overseas stations were quickly dried before 1914 and their ships used to reinforced the home commands[24]. Although the British Empire was large as ever, enough warships were still concentrated to outnumber the German ships in any battle. On 31 May 1916, when the German fleet sought to ambush the flying squadron of British ships with its full strength, the Royal Navy manage to sail and outgun their enemies with 37 Dreadnoughts and 8 Armoured Cruisers to 21 Dreadnoughts and 6 Pre-dreadnoughts. Later the battle would be known as the Battle of Jutland. Although Germans partly

[22] Nicholas A. Lambert, "*Admiral John Fisher and the Concept of Flotilla Defence, 1904-1909*", The Journal of Military History, no.4, vol.59 (October 1995): 641.
[23] Eric Grove, "*Battleship is Dead, Long Live Battleship: HMS Dreadnought and the Limits of Technological Innovation*," The Mariner's Mirror, vol.93, no.4 (November 2007): 422.
[24] Corbett, vol.1.

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achieved their goal by destroying 6 British capital ships with the loss of only 2 themselves. The concentration of British fleet made them much more capable to endure losses. After the battle, the German fleet had only 10 Dreadnoughts still capable of sailing immediately and the British had 27. On 19 August 1916, when the fleets clashed again, the British outnumber their German colleagues with 35 Dreadnoughts and 5 Armoured Cruisers to a mare 2025. Tirpitz's fleet failed to pose a proper threat.

Although the Royal Navy faced more and more pressing challenges entering the 20th century, these challenges were posted by the vastness of their colonial Empire and the sea itself. A forced battle would force their enemy to give up these advantages for nothing. Instead of spreading their warships around the world, the British had a chance to concentrate in a highly confined region to face a familiar enemy seeking battle willingly.

Warship concentration has far greater power than most people realized: One of the most fundamental theory is the N-Squared Law calculated by the Lanchester's Attrition Differential Equations. Essentially, when a fleet of 100 ships encounter another of 75, the larger fleet would not need to suffer the casualty of 75 ships to annihilate the enemy, as the linear subtraction would suggest. Instead, as the model suggested, when the smaller fleet of 75 ships was destroyed, 66 ships of the larger fleet would survive26.

This is because in the battle, ships do not tend to fight duels one by one while the rest of the fleet waiting aside: Should a fleet master more ships, it would be able to direct the extra firepower into combat freely and thus sink enemy ships faster. The larger the fleet is, the quicker this advantage would show. And essentially a fleet with more ships would always end with far less casualty in the end of the battle in a perfect mathematical model. A battleship fleet would thus pose far less threats to the Royal Navy when it masters its full might into a larger fleet: And Tirpitz had no solution to avoid this situation.

A direct contrary can be found in the submarine warfare. Submarines were perfect example of the unconventional naval engagement in a much larger battlefield: After the disastrous submarine attack of the Great War, the Admiralty set out to estimate the number of ships needed facing a submarine-heavy fleet in another war and the number found was stunning: In a multi-year full scale war, the Royal Navy would need 102 ocean-going escorts in the West, 102 in the East and possibly another ten flotilla of 150 for fleet actions; the Navy would need 308 more coastal escorts in European water and 109 in Far East. If the war were to last longer than a year and escalate during the duration, the respective numbers would rise to 638 and

[25] Corbett, vol.2, vol.3 and vol.4.

[26] Joseph Czarnecki, "'N-Squared Law' An Examination of one of the Mathematical Theories behind the Dreadnought Battleship", http://www.navweaps.com/index_tech/tech-076.php.

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412 27. Noticeably this is a huge underestimation by no means resembling the actually ships needed in Second World War when submarines became more advanced. While several hundred escorts might not be necessarily more expansive than several dozens of Battleships, there was no possibility to meet the number needed with fleet concentration in this case. Only wartime emergency conversion of fishing trawlers and massive building of corvettes might satisfy the need, but it would take time. Before effective means could be engineered, the loses of a portion of merchant fleet were almost inevitable and thus significantly more threatening than a fleet of conventional battleships seeking battle in the North Sea.

The Tirpitz Plan and Risk Theory were flawed and designed specifically for German Navy: A fleet without overseas allies and Geologically blocked by the British Isles. Tirpitz was forced to choose between two impossible options: Sending ships into the Open Seas to force the British to spread and hunt them, or decisively defeat them in a proper battle. It was understandable that the first approach of raiders would be much less appealing in the 1890s and 1900s. The much more successful German attack upon the British Empire later in the 1940s was achieved with the acquisition of Norwegian and French coasts, which granted them much better access into the Atlantic Sea through the Biscay Bay and GIUK gap. In the two decades of Tirpitz's time controlling the Navy, these coasts and ports were not available. Even after controlling France and Norway, without strong pressure from the Regia Marina and Imperial Japanese Navy in other theatres, early Atlantic raids in 1938 and 1939 ended terribly. Early in the Great War, The German East Asia squadron under Admiral Maximilian von Spee won an initial victory raiding in South Atlantic in November 1914, sinking two British Armoured Cruisers and Admiral Cradock with the ship. Yet without coal supply and ammunition, he decided to raid the Falkland and got killed with almost all his ships sunk 28. Similar action in 1939 saw a Panzerschiff named after him sunk in South Atlantic as well, outgunning three smaller British cruiser yet had no chance of defeating them before ammunition dried and machines gave up29. Many of the raids into the Atlantic by surface ships were turned away by British fast capital ships. Even the most successful raids in 1940 by two new Battleships and a dozen supply ships failed to threat any significant convoy, as they were usually escorted by Battleships as well. In one brave attempts in May 1941, when Battleship Bismarck tried to repeat the operation, she met again some initial success sinking the famous Battlecruiser Hood, before being damaged and sunk three days later. The European surface actions between major fleet units ended in 1943 when another German Battleship Scharnhorst was sunk in a raid30. There was no doubt that putting any fleet unit, other than submarines, far into hostile water was a terrible idea.

[27] Norman Friedman, *British Destroyers and Frigates, Second World War and After* (Seaforth Publishing, 2017), 59.
[28] Corbett, vol.1.
[29] Bennett, Geoffrey, *Battle of the River Plate* (London: Allan, 1972).
[30] Barnett, Correlli, *Engage the Enemy More Closely: The Royal Navy in the Second World War* (Correlli Barnett. London: Hodder & Stoughton, 1991).

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Yet, instead of trying to decisively defeat the British fleet or completely retreat into defence, Tirpitz tried something in the middle: He built a fleet large enough to pose threat, yet did not aim to actively use it to actually win as it was but a deterrence. He failed to see that socially it was impossible for the British to accept a German naval supremacy above anything else.

While Nationalism was influential in both countries, the British and their Imperial allies saw Navy more as a symbol of the Imperial power: In previously mentioned battle against German East Asia squadron in November 1914, the British squadrons sought to fight the much stronger enemy with two new modern Armoured Cruisers and three Light Cruisers with only two outdated Armoured Cruisers and one Light Cruiser. The British commander, Rear-Admiral Cradock, knowing reinforcement was coming and other fleet elements were near, rushed into battle and charged the German fleet to meet his death. Many suspected that he feared the criticism should he chose caution rather than "Nelsonian Heroism"31. He had cause to fear. When Admiral Archibald Berkeley was shadowing the new German Battlecruiser Goeben right before the start of war, he lost his targets as his three old Battlecruisers were no match in speed. This rather understandable failure was treated with overactions and Berkeley never commanded any ship again in his life32. British public seemed to be constantly expecting their Navy to work miracle in the impossible situation: In the Dardanelles Campaign, while the Navy did not actually lose as many ships as later would be depicted in public view, although the battle was a disaster and took countless life in both sizes. Three British Pre-dreadnoughts were lost, and it cost Winston Churchill his job as the first lord of Admiralty. Later the similar situation would be found in Admiral Beatty, who was criticized for incapable to stop the German raids on Scarborough and Hartlepool. The raid was far less effective and did not cause major damage. And it was essential impossible to stop a fast raid in the technological capability then, yet the public did not see reason and forced Beatty's Battlecruisers to launch a series of dangerous retaliations in the following months. In 1916, Admiral John Jellicoe faced similar fate for failing to decisively destroy the German fleet in Jutland, deposits he effectively forced the largest German dreadnought fleet in history to flee minutes after commencing bombardment33.

The Royal Navy and their victories in the Nelsonian Era were seen as the Imperial symbol and in little chance would the Navy surrender a concession without a fight. The Anglo-German cooperation Tirpitz hoped would saw the Navy as a failure in the public eyes and officers in the fleet or politicians in the Parliament would be unlikely to risk their reputation for it. Instead of being deterred by a

[31] Steve R. Dunn, *The Scapegoat - The life and tragedy of a fighting admiral and Churchill's role in his death* (Book Guild Limited, 2014).
[32] Heathcote, Tony, *The British Admirals of the Fleet 1734 – 1995* (Pen & Sword, 2002).
[33] Jellicoe, John Rushworth, *The Grand Fleet, 1914-1916; Its Creation, Development, and Work, by Admiral Viscount Jellicoe of Scapa, with 9 Plates and 13 Plans and Diagrams* (London: Cassell and company, 1919).

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smaller but dangerous fleet, it would seem that the Royal Navy would rather face far stronger foes willingly. They continued the costly attempts to seek battle in the rest of the Great War and the Second World War for the best part, with regional fleet commands fought much larger Italian or Japanese elements decades later.

Tirpitz's Plan and his Risk Theory as its foundation were clearly different as a pure military expansion warmongering for a battle. It was complicated and intellectually constructed. Yet a plan trying to avoid war or at very least avoid the full escalation in the next war would still be appalling to fail in such a complete way.

Clearly, Tirpitz was keenly aware of the latest technological advances in the maritime transportation and naval warfare. As one of the most prominent naval officers and theorists at the time, he saw the great potential of larger, more powerful modern warships and decided to put the traditionally less influential German Navy into a position to better serve the nation. Yet, his foresight in naval innovation was limited, as once formed, this foresight became largely fixed and incapable to incorporate later changes. The Risk Theory was essentially unchanged after its creation, although the British maritime and naval policies changed greatly in the 1900s. Tirpitz then would be aiming to use a theory based on the innovations of 19th century to ensure a British concession in the 20th century. As a result, his expensive battle fleet was far less threatening than expected and seen by the British as a provocative move rather than defensive deterrence. The major surface units of the High Sea fleet achieved nothing: It did not stop the British joining the Great War in 1914, its sailors mutinied in 1917 and its ships scuttled in 1918. It was a lesson for all Naval theorists to see: Without a flexible adaptation of latest naval developments and a thorough understanding of the social history of its opponent, no Naval Theory or construction plan can survive the test of time.

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