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Angus K. Ross

FOUR LESSONS THAT THE U.S. NAVY MUST LEARN FROM THE *DREADNOUGHT* REVOLUTION

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There is only one thing harder than getting an old idea out of a military mind, and that is to get a new one in.

SIR BASIL H. LIDDELL HART

Four years ago, on 14 June 2006, at a Current Strategy Forum held at the Naval War College, the then Chief of Naval Operations (CNO), Admiral Michael Mullen, challenged the audience to think about a new strategy for the U.S. Navy.[1] Recalling the enthusiasm and fresh thinking that had surrounded the development of the World War II ORANGE plans against Japan and a later, Cold War, naval strategy, he urged that the time was ripe to take an equally fundamental look at the needs and constraints of the modern age and to codify a possible maritime contribution to emerging national objectives. Early work in this direction has produced the joint Navy/Marine Corps/Coast Guard document "A Cooperative Strategy for 21st Century Seapower" (hereafter CS-21), which was released in October 2007.[2] It is fair to say that the paper has had mixed reviews, and it is not the author's intent here to add anything to that debate. Instead, it is hoped that this article—by taking the "Cooperative Strategy" simply as a broad statement of how sea power might be used in the next twenty years or so to defend the nation's global interests and noting that any discussion of forces and force structure had been explicitly discouraged in its formulation—might help stimulate the next stage of the inquiry.[3] This stage will need to address the tough questions of how, if at all, the U.S. Navy needs to adjust its "institutional fabric" in order to embody the principles contained in the document. Put simply: Will the essence of American

Professor Ross, a retired Royal Navy commander, teaches on the Naval War College faculty. He joined the Royal Navy in 1975 and, after completing basic training and a bachelor's degree in marine zoology and oceanography and becoming an antisubmarine warfare specialist, served variously in HM Ships around the world from 1976 until 1996, when he arrived in Newport. He has taught ever since on the Joint Military Operations faculty, gaining a master of arts degree in national security and strategic studies in 1998 and a master of arts in history in 2005. He is now pursuing PhD studies in European history.

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sea power, as we have come to know it, need to change, and if so, how? It is also important to appreciate at this stage that the Navy's institutional fabric, while it certainly contains force structure, is much more than mere platforms and capabilities. The way the Navy sees itself within the global context, the missions it sees as important, how it educates and develops its manpower, and even how it goes about convincing other institutions of its worth all will need patient reflection before the process can be called complete.

As a way of getting started, however, it might be instructive to look at how others have responded to previous times of great change in history—if only to see in advance some of the pitfalls. Since a general consensus has us moving today from an "industrial" to an "information" age, an obvious place to look might be the equivalent "watershed" era, the onset of the industrial age in the late nineteenth century. The aim should be to look for broad parallels: to see if there is anything that we can learn from their experiences that might better inform the modern debate and help us to avoid mistakes like those made at that time. There should be nothing prescriptive in this, since every time period has its own unique, prevailing set of personalities, politics, and geostrategic circumstances that, to a large extent, dictates the scope and scale of the possible responses. That said, there are certain recurring problems in these processes, the study of which can definitely improve our overall understanding of the dynamics at work. Finally, while the ultimate need for a joint approach is accepted, one of the key functions of service thinking is to look at problems from the perspectives of individual services and environments, so as to ensure that their own, unique contributions are identified and that joint provisions can be made accordingly. There is therefore value in defining a possible *naval* contribution at an early stage. This work therefore focuses exclusively on strategic thought as it pertains to possible naval operations.

Specifically, this article will look for parallels with the case of the Edwardian Royal Navy under Admiral Sir John "Jackie" Fisher in the 1904–1908 time frame (figure 1).[4] This is a period and service that inevitably commands attention from modern American strategists. Although similar technological and strategic pressures were being felt all over the world, here was a naval power that had long enjoyed a position of maritime primacy; had a well established, tried, and tested maritime strategy for dealing with the global commons; and yet was facing a combination of fiscal and technological changes that threatened its traditional way of fielding and using its power. In short, with the twin prospects of a slowing economy and a massively increasing imperial defense budget, Great Britain was facing a need to make economies in its naval spending while at the same time confronting huge new challenges as the world's premier sea power.

Although reasoned strategic exposés were rare in the late Victorian era, the Royal Navy's long-standing approach to its responsibilities prior to Fisher's arrival can best be summarized as follows. The most fundamental naval role was of course the defense of the home islands against an invasion from Europe. This was to be entrusted to a fleet of battleships based in the English Channel, although it could be reinforced if necessary from the other powerful battleship fleet in the Mediterranean or the reserve fleet, as appropriate. For Britain, therefore, battleship primacy was of the utmost import, and the nation went to great lengths to maintain a superiority in these platforms such that "it should at least be equal to the naval strength of any two other countries."[5] This "two-power standard," as it became known, meant in practice that the bulk of the resources allocated to the Royal Navy were channeled into battleship building, particularly when facing the very real threat of the combined fleets of France and Russia. Unfortunately, it also meant that naval strategy and the procurement of battleships became somewhat synonymous, particularly with politicians, with the overall detriment of the quality of naval strategic thought.

Equally, it is important to appreciate that the battleship building policy was also inextricably linked to Great Britain's overwhelming superiority in ship building. Britain was one of the first powers to industrialize, and having a clear need for overseas trade, its shipbuilding and shipping lines had taken an enormous lead over the rest of the world, such that by the late nineteenth century British-built or -owned ships accounted for some 80–90 percent of oceanic trade. Obviously the infrastructure generated to produce such a large fleet amounted to so massive a latent capacity in shipbuilding that it was possible for the British to produce complex warships more cheaply overall and far more quickly than anyone else. This advantage meant that a part of the late Victorian naval policy was the deliberate encouragement of batch building and conservatism in design—the theory being that should an opponent develop an innovation of interest, the Royal Navy, provided it could analyze the merits of the advance in time, was well placed to respond appropriately and field its own versions of the improvement at a quicker pace than the nation that had originally conceived the idea.

The development of empire in the second half of the nineteenth century, however, caused some difficulties with this policy, and it is true to say in general that the navy failed to keep pace. In particular, the defense of the overseas possessions themselves and the considerable commerce that ran between them were two areas that became increasingly important as secondary naval missions and yet were ill matched with this battleship preponderance. In fact, and as John Beeler has described, prior to the advent of the *Royal Sovereign* class in the 1890s,

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a true oceangoing capital ship was simply not feasible from a technological point of view, even assuming that sufficient funds were available.[6] This dilemma led to an additional need for whole classes of "cruising ironclads" (or "cruisers," as they became known), an essentially new type but one whose speed and endurance produced a demand for it also as a scouting vessel for the battle fleet. Though these vessels were considerably cheaper at the outset than capital ships, they were destined to grow in complexity and size as their utility became evident. It should also be remembered that these classes were "over and above" the continuing need to meet the "two-power" obligations in battleships.

As a result of these fiscal pressures, there was a natural tendency to use the older, less sophisticated classes of cruisers on the imperial beat as "station" cruisers —following the rationale that a cruiser that was obsolescent for a scouting commission in a fleet pitted against first-class European opposition could still serve with credit abroad, where the likelihood of its encountering sophisticated opponents was considerably reduced. For a while this policy worked well, but with the advent of faster, long-range, armored cruisers developed by France specifically for distant-waters operations in the 1890s, the days of a ship living out its twilight years in glorious isolation abroad looked to be numbered. Unfortunately too, by this time the massive growth of the imperial responsibilities had led to many scores of these vessels being so employed; the prospect of replacing all these types in short order with first-rate, armored cruisers was a daunting one. It was this development more than any other that led to an increased financial draw on the naval budget and all the attendant scrutiny that this involved.

A recent analytical brief highlights this period as one in which the world was policed by an "undisputed global navy" (that of Great Britain) but offers little insight into how the Royal Navy actively attempted to offset these fiscal challenges by novel strategic thought.[7] Worse still, by simply inferring that the British government "chose to limit its foreign and security policies to meet the German threat" it drastically oversimplifies the extensive debate that raged at the time and so risks dismissing useful lessons that might be learned from this example. In part, therefore, that work, among others, has provided inspiration to look at this period more closely.

While the need for savings was always an integral part of Fisher's plan, it is vital to recognize that for him the main objective was always the continuance of Great Britain's primacy as a maritime power. A fervent navalist with a strong sense of patriotic duty, he differed from most of his naval colleagues in that he had realized early on that the economies being demanded were necessary for the nation's continuing health.[8] In short, if maritime primacy were to be preserved, the only responsible way forward for the navy was to accommodate these savings by

FIGURE 1

Admiral Sir John "Jackie" Fisher
U.S. Naval History and Heritage Command

adopting a radically different vision of future naval warfare—a vision he believed that advances in technology were on the verge of delivering. Specifically, Fisher worried about the continuing soundness of each of the three main naval missions mentioned above. The "anti-invasion" battle fleet looked to be increasingly threatened in coastal waters by the torpedo, while the station cruiser and commerce protector abroad were similarly under threat from the sheer speed and reactivity of the modern armored cruiser squadrons then under development by France and Russia. Worse still, however, was the manpower situation. In essence, and because of the growth in the numbers of these older cruisers scattered around the world, a large percentage of the navy's available manpower was committed abroad on stations where it could learn little about the techniques and drills associated with modern warfare, or anything of fleet maneuvers. To Fisher this was an unforgivable waste in an era where naval warfare was increasingly characterized by extreme suddenness.[9] He believed that the Royal Navy simply could not afford to keep such a high percentage of its human capital essentially "untrained" in the art of modern naval warfare; besides, he needed these men at home in order to man the revolutionary new fleet he was about to develop.

As a result of these concerns, Fisher set to work on a truly comprehensive reform program that sought to prepare the Royal Navy for the new era. Underpinning these reforms was the idea that Great Britain could no longer afford, nor was it necessarily tactically sound, to provide a dedicated platform type for each of these three naval missions. The available speed and endurance of modern ships was opening the door to more general-purpose types. Furthermore, by the

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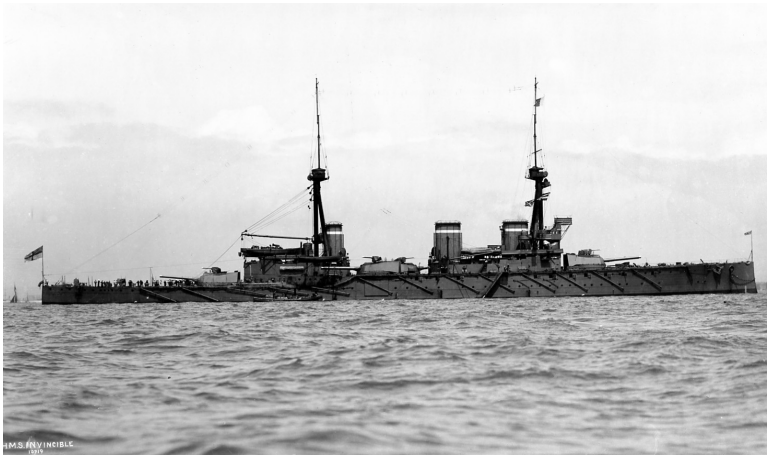
FIGURE 2



HMS *Invincible,* 1909

U.S. Naval History and Heritage Command

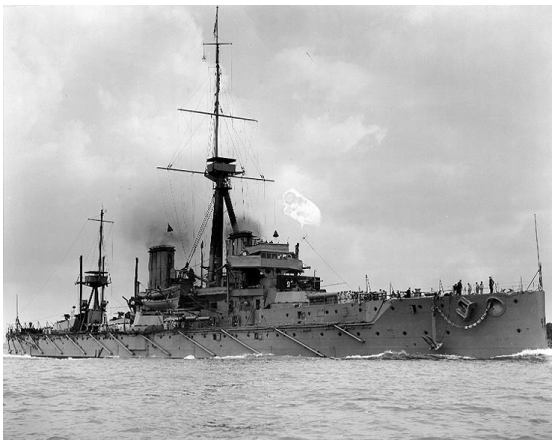
judicious use of the new technology and better training, he believed, it was possible to change radically the way in which these missions were addressed and still provide the savings demanded by the Treasury. Although space does not permit a full discussion of these interdependent reforms, the most pertinent here was a revolutionary new naval strategy centered around the twin technologies of the submarine and the "battle cruiser" (such as HMS *Invincible,* pictured in figure 2), a fast and lightly armored capital ship with a huge offensive punch, designed specifically for the global needs of imperial defense.[10] It was on these battle cruisers that the offensive part of Fisher's strategy depended: in short, if these vessels could be made fast enough to react in a timely fashion to events abroad and powerful enough to prevail against all modern vessels overseas, it should be possible to recall and replace all the station cruisers (and a significant amount of the battle fleet) with "reactive" squadrons of naval power projection and garner all the efficiency savings as a result.

Sadly for Fisher, and although he was successful with a great many of the administrative parts of his reform package, a combination of unforeseen circumstances and pressures ultimately prevented him from radically changing the strategic ethos of the Royal Navy, or at least within a strategically useful timescale. As a result, many of the technologies and platforms being developed for his purposes seemed strangely out of place once they appeared. The inevitable consequence was that they were misemployed by a staunchly traditional Admiralty, unwilling to accept the need for change. Perhaps the most obvious victims were the battle cruisers, which, instead of heading up fast "flying squadrons" of global commerce protectors as Fisher had intended, were relegated to the traditional battle fleet, organized as a fast division with the mission of holding contact with a fleeing enemy.[11] This role, which ignored their intended strategic rationale and constrained them to lower speeds, made them acutely vulnerable to the better-protected battleships, and the results, in retrospect, should have been obvious. Paradoxically, though, *Dreadnought* (figure 3),

Fisher's first revolutionary platform, designed to showcase some of the very technology that would—in his mind, anyhow—put the battle-fleet idea out of business, went on to thrive as a type.[12] Whole classes of "dreadnoughts," as they came to be known, were built by most of the leading naval powers of the day, despite the fact that the traditional battle line, as a strategic tool, was increasingly suspect, both in scope and substance.

The reasons why Fisher's radical new naval strategy failed to catch on make illuminating reading for today's would-be reformers. While some of the technological circumstances are clearly unique to that age, many of the broader strategic and institutional pressures have parallels in all time periods, and our recognition and understanding of them can therefore help us to prevent their worst effects in the future. Specifically, the issues of excessive reliance on technology, the need for strategic flexibility, the need for full and comprehensive dialogue, the danger of "lazy" assumptions, and the problems of personalities and distractions—all played parts in the failure of Fisher's strategic revolution, and all remain salutary lessons as relevant today as ever. The very fact, however, that this revolution was attempted by the world's premier navy in order to maintain its position of maritime primacy makes it an essential reference point for those intent on similarly preserving the maritime primacy of the United States a century later. It is, after all, arguable that by not accepting the need for an innovative approach, Great Britain overstretched itself financially in attempting to apply time-honored solutions to an altogether more taxing, industrial-age naval scenario. As a result, the British were to be poorly placed to recover from the shock of the world wars, and their loss of naval primacy was virtually assured.

FIGURE 3



HMS *Dreadnought,* Photographed in 1906
U.S. Naval History and Heritage Command

THE FISHER REVOLUTION, IN A NUTSHELL

Any brief résumé of the main points of the Fisher revolution and how they have been interpreted by the historians must begin with the work of Arthur J. Marder. A historian with a diplomatic background, Marder approached British naval policy from the assumption that the larger, grand strategic premises had already been established beyond reasonable doubt. His landmark, five-volume treatise on the Fisher years (1961) has a single big theme, a theme that can be summarized as follows.[13] Prior to the arrival of Fisher as First Sea Lord, Marder argues,

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the Royal Navy was in the doldrums. Overwhelmed by the pace of technological change and lacking any cohesive strategic direction as the Russian and French naval situations changed (as we shall see), British naval policy wavered. Fisher, with an eye toward an expansionist Germany, managed in short order to reform the navy comprehensively and drag it into the industrial age in time to meet the challenge. The main vehicle in his modernization program was *Dreadnought,* a battleship of a design that embodied his twin ideals of speed and hitting power and that he felt Britain's superior shipbuilding resources could produce more quickly and cheaply than could any other nation's. Marder's key assumption is that Germany had already been identified as the main imperial threat to be countered. Thus in his view, the containing of its emerging battle fleet was what dictated the course of Royal Naval policy and gave Fisher's reforms, including *Dreadnought,* their true meaning.

Comprehensive though Marder's treatment is, certain aspects of contemporary documents hint at a different interpretation. Chief among these was the disquieting fact that Fisher, in both private and official correspondence, seemed to indicate that the role of the battleship as the sole arbiter of naval power was becoming questionable on a number of counts. For one, he cited the increasing range of the Whitehead torpedo and the consequence that the whole concept of operating heavy ships off an enemy coast in waters infested with torpedo craft and submarines was becoming unacceptably risky.[14] When the only way to threaten a battleship had been with a more powerful exemplar of the same type, battleship primacy had made sense, but to Fisher's way of thinking, those days were now long past. The advent of fast torpedo craft and the long-range torpedo had effectively put the proud battle fleet within the killing reach of even small navies on limited budgets, leaving its rationale problematic.[15] Fisher therefore looked for what we would call today a "capabilities based" appraisal: a hard look at the fundamental necessities of the sea fight and how these might best be provided—perhaps by the adoption of a completely different set of platforms. For Fisher, of course, the two essentials in any sea fight were speed and hitting power.[16]

More recent scholarship has asked questions that Marder did not address. Jon Sumida, in a crucial analysis of the impact of finance and technology on British naval policy (1989), makes the case that it was the impending fiscal crisis that Great Britain faced in the early years of the last century and the consequent limits on naval spending that pointed to a radical rethinking of how the naval mission should be resourced.[17] In short, it had become impossible to continue the construction of up-to-date warships in the numbers and varieties required to protect all of Britain's maritime interests. The choice was therefore simple: either the Royal Navy would have to drop some commitments, prioritizing its

efforts, or else it would have to look for imaginative ways of doing more with less. This impending crisis was perhaps most ably summarized by Lord Selborne, the First Lord of the Admiralty: "They [the Sea Lords] must cease to say 'This is the ideal plan; How can we get enough money to carry it out?' They must say instead 'Here is a sovereign; How much can we squeeze out of it that will really count for victory in a naval war?'"[18]

At about the same time, the parallel development of the submarine has been taken up by Nicholas Lambert, who in a series of articles and a book (1999) has provided another of the connections that make Fisher's intended strategy hang together.[19] In doing so, he convincingly explores the strategic problems facing Fisher. What sort of fleet was necessary to defend all of Britain's maritime interests in this changed era, and how might this best be provided for on a declining budget? Lambert concludes that Britain had three main imperatives—to defend the homeland, to protect the empire, and finally to safeguard the vast network of interconnected global trade routes. As explained earlier, Fisher realized that the conventional approach to these needs—that of employing three specialist platforms, the battleship, the "station cruiser," and the armored cruiser—was no longer affordable or even tactically sound. The battle fleet was becoming increasingly vulnerable to the torpedo in the shallow waters around the homeland, while the speed and range of modern heavy warships meant that less-capable cruisers scattered on stations around the world on basically diplomatic duties were increasingly at risk. These vessels were neither strong enough to fight nor fast enough to run away from the fast squadrons of armored cruisers that could now threaten them.[20]

Fisher's solution was elegant and simple, and it played to the new naval strengths of the day. If submarines and torpedoes were making the shallow seas unacceptably risky for the battle fleet, then Britain should move its battle fleet out of harm's way and rely on the same, new technologies to pose an equivalent threat to any potential invader. In essence, the coastline of Great Britain was to be entrusted to a sea-denial flotilla of torpedo craft, but mainly submarines. Similarly, if the sheer mobility of modern steamships was threatening the station cruiser on the empire "beat," the answer was to develop faster, more powerful armored cruisers that could respond, in squadron strength and quickly, to events in vital regions. The key here lay in utilizing the enormous advantages possessed by Britain on account of its many key possessions overseas, something that separated it from all competitors. If based at what he called the "five keys that lock up the world" (the imperial fortresses of Gibraltar, Singapore, Alexandria, Dover, and the Cape of Good Hope), Fisher reasoned, squadrons of these new battle cruisers would provide all the necessary naval strength that Britain might require on a regional basis.[21]

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In this way, and because of the improved reaction times and combat power embodied within the battle cruisers, Fisher further deduced that the navy could do away with all the numerous station cruisers altogether—in effect, consolidating its naval power into a few squadrons of fast, powerful ships. Basically, the Mahanian idea of concentration at the center in a fleet of powerful battleships was being flipped onto its head. In Fisher's plan the sea-denial strategy protected the center, releasing large capital ships for a more active defense of the vulnerable periphery and the vital trade routes across the global commons.[22] In other words, naval concentration was still achieved not at the center but on the periphery, which, in Fisher's view, made more sense for an industrial nation that was uniquely dependent on an import economy. In so doing, two new platforms, submarines and (what Fisher originally called) "super" cruisers, would have to be developed and perfected to replace the three traditional types that had performed these missions. The great selling point was, of course, savings; submarines were considerably cheaper than heavy ships, and the "super" cruisers, though expected to be expensive, particularly in manpower, were effectively to replace all varieties of cruisers and battleships as well.

Fisher's own clarity of purpose notwithstanding, it is nevertheless inescapable that Great Britain did not radically alter its naval strategy, or at least not within a timescale that would have given such a shift real strategic value.[23] Instead, it plunged headlong into yet another round of battleship escalation, while at the same time attempting to maintain parity across the board in all classes of naval vessels. The results were predictable, and financial exhaustion was averted only by the onset of a European war and the consequent readjustment of national priorities. In this light, it is unfortunate that naval historians have tended to analyze this period in terms of the merits or otherwise of a supposed "dreadnought revolution" and not, as might arguably have been more correct, as the aftermath of a failed "battle cruiser revolution."[24] It is argued here that only by looking at it from this latter perspective will the correct institutional lessons on handling change be drawn. So what exactly went wrong, and why?

TECHNOLOGY, TIMING, AND THE PROBLEMS OF STRATEGIC UNCERTAINTY

Given the problems encountered with the battle cruiser's fire-control system accuracy at long range, it is tempting to conclude that this was just another in the long line of instances where technological promises came to naught, thus leaving a strategy without its necessary enabler. While there are certainly aspects of this in the Fisher story, it would be a gross oversimplification if accepted without regard to the changing strategic situation. After all, the British were certainly innovating at the time, producing revolutionary advances in gunnery,

submarines, and propulsion, and all with remarkable rapidity. Second, British industry was doing a commendable job of actually delivering these technologies, as workable weapons systems and in time to make a difference strategically—or at least, it was doing a better job than the competition, which is, after all, the crucial point here. It would therefore be not only wrong but misleading simply to dismiss these successes as irrelevant. Far more important to our understanding of the dynamics involved, though, are the reactions of policy makers in the Admiralty to these technological promises. Did they, in fact, pose the right strategic questions in order to make the best possible use of what was likely and realistic in the near term?

Using a related case, Erik Dahl, writing in these pages, examined whether the controversies surrounding the French "Jeune École" movement of the late 1800s might hold any lessons for a transforming American military today, and specifically for the proponents of network-centric warfare (NCW), which seems to have been the main naval contribution to the transformation arguments thus far.[25] This is a useful and convenient starting point for the type of debate being advanced here, although by simply concluding that the Jeune École was "ahead of its time technologically" and that its proponents were guilty of "misjudging the pace of change in naval warfare," Dahl may have missed an opportunity. Specifically, he seems to have overlooked the most fundamental and important lesson that can be drawn from the whole Jeune École experience—that in times of great political and strategic uncertainty, such as we again face today, it does not pay to develop a navy with too narrow a strategic focus or too specialized a mission set. After all, the only irrefutable historical consequence of this whole event, as Dahl recognizes, was surely that the French, in their intermittent pursuit of a specialized form of warfare against a single opponent (Great Britain), failed to foresee that were the grand-strategic situation to change, their innovative fleet was likely to be rendered strategically irrelevant and their nascent military-industrial complex would have insufficient time to adjust.[26] In effect therefore, they were not asking the right strategic questions in the appropriate global context. This is essentially what caused the French navy to flounder for forty years and France to lose its position as a leading naval power.

To some extent, but with one important exception, Fisher's battle-cruiser idea suffered from a similar strategic "overspecialization," and once again this was revealed by an unanticipated strategic shift. In the three decades prior to these ships' conception, both the French and the Russians, whose navies had been hopelessly outclassed by the British battle fleet and who lacked the resources to compete in this realm, had made a considerable effort to challenge Great Britain instead by preparing for commerce raiding on the global commons. Here they had correctly assessed that their enemy would be much weaker.

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By building a whole series of fast commerce destroyers, these powers, whether acting alone or in an alliance together, had posed a threat that was to give the battleship-centric British considerable headaches.[27] Great Britain's early answer had been simply to outbuild these two powers in similar armored cruisers, and it was this program, on top of the maintenance of a superior battle fleet, that had led to the fiscal crisis so ably described by Sumida. However, by 1905 France was becoming increasingly aligned with Britain, in fear of the rising Germany, and Russia was temporarily out of the naval picture, having suffered devastating losses in the Far East. This left only Germany, and lacking the necessary global infrastructure of bases, it was in no position to threaten Britain's global commerce in the way that France and Russia once had, although it unquestionably had the technology. In fact there is considerable evidence that the German naval strategists had long before discounted a naval war against British trade.[28] Regrettably for Fisher, however, this all happened too quickly for the naval procurement cycle.

The truly unfortunate part of this story is that notwithstanding the merits of the strategic thinking that had underwritten their development, by the time Fisher's battle cruisers actually emerged some four years later, these quirks in international politics had made them seem strangely irrelevant. Naval affairs were once again, if perhaps artificially, dominated by an enhanced version of an altogether more familiar brand of naval power—the dreadnought battleship. Could or should this reversion have been foreseen? The answer would seem to be qualified: yes and no. Yes—the British had taken a calculated risk that the future would, as envisioned, require a more proactive role for their navy on the global commons. In developing a more specialist capability to that end they had eschewed their tried and tested policy of letting the others do the innovating while trusting in their markedly superior shipbuilding abilities to mount an appropriate response within the requisite time frame.[29] Even at the time, there were many who believed that this was the wrong strategic choice.[30]

But, with due deference to their lordships, and going back to the exception mentioned earlier: no—Great Britain was different. It was the premier maritime power of its day, and thus the traditional "wait and see" approach might not have been the best one under the circumstances. The French, who were attempting to compete from a position of naval inferiority, had to always respond, to a certain extent, to whatever stance the more powerful navies took, but the British had no such encumbrance. They were uniquely free to make naval strategic choices, secure in the knowledge that whatever steps they took, they could invariably drive their competitors into areas that were even less advantageous to them. This, after all, is one of the advantages of supreme military power: it gives you strategic choices and allows you to select those that cause the maximum disruption for

your rival. The British therefore, facing as they were a whole series of difficulties related to the uncertainties of the era, may in fact have erred by not relying on this hard-won strategic safety net more thoroughly. Arguably it was time for them to maximize their innovation, while they still stood a chance of finding a more durable way to retain their primacy.

Perhaps the one concrete mistake that they did make, however, was to provide a skeptical Admiralty Board with an altogether familiar and superficially convincing alternative, that of enhancing the battle fleet itself with *Dreadnought*-type battleships. Had the members of the Fisher team had the courage of their leader's convictions and gone solely for the battle cruiser, without an "interim" battleship design, it is interesting to speculate what the competing naval powers would have done in reply.[31] Germany, with its battleships becoming vulnerable to the planned British submarines and therefore possibly irrelevant for supporting any projected invasion of the British Isles and with its global naval infrastructure unable to support capital ships in distant waters, would have been in a quandary for sure. Arguably, however, and given what we now know, the worst case for the British would have seen the Germans rising to the challenge and competing, hull for hull, but in battle cruisers. The intriguing question, though, remains: Would this have served them well strategically, as against the British, and if not, what might they have done about it? While we can never know for sure, there is an interesting possibility that, with no immediate prospect of resolution of the foreign-base issue, the Germans might have been more willing to entertain the sort of naval limitations that were being discussed in the margins of the Hague Conference of 1907. These speculations aside, the essential point is that this sort of analysis makes excellent fodder for those contemplating today the best path for the U.S. Navy. Like the Royal Navy in the Edwardian era, the U.S. Navy is today's premier naval power and therefore shares its predecessor's unique freedom to make strategic choices that are inconvenient for their rivals.

Moreover, in Fisher's time there is no doubt that technology's fickle side played a role. After all, if these lightly armored "super" cruisers were to prevail in combat against armored cruisers and older battleships, they would need to deliver knockout blows from beyond the reach of their opponents. However, while they could use their speed advantage to position themselves, the ability to score hits from long range had been proving elusive, to say the least. Significantly, however, Fisher believed that once again technology was fast coming up with the answer. His gunnery background and enthusiasm for the long-range accuracy problem told him that a true-course calculator being developed by Arthur Pollen, the "Argo clock," was about to provide a revolutionary solution to the problems of long-range hitting.[32] It is important to appreciate that the whole rationale of a lightly protected ship striking with impunity depended completely

on this fire-control problem being solved in short order.[33] In essence, there could be no effective battle cruisers without first having an accurate, long-range gun. Thus Pollen's invention, or an equivalent, was absolutely vital to Fisher's plan. As it happened, through a combination of technical difficulties, delays, and parochial competition, the issue of long-range hitting was not completely solved until the battle cruiser as a warship type had already been deemed questionable at best.[34]

In sum, given the patent difficulties surrounding accurate predictions of international politics and the likely effects this might have on strategy, not to mention the problems of matching technological expectations with real and tangible results, arguably the only points a modern strategist can take away are fairly general. For example, it is unquestionably a historical fact that armed forces that become overspecialized with respect to a given foe under unique but temporary strategic circumstances (e.g., the French above) run the risk of being "marginalized" should those circumstances change. This is simply the result of the time it takes to procure new tools to fit the new strategic imperatives, as compared to the rapid development of those new imperatives in the first place. This argues for the retention of a more general, although arguably less efficient, overall capability set. Equally, however, there seems to be a strong argument that encourages large powers, particularly those in predominant positions, to "force the pace" by maximizing their innovative capabilities. By pursuing more efficient strategies, they can push their competitors, who must compete from different baselines, into even more unfavorable circumstances than their own. At first glance, these approaches may seem like polar opposites—"damned if you do, damned if you don't"—but perhaps they are better looked at as balancing factors, guidelines that can help but should not be used too prescriptively.

LAZY ASSUMPTIONS, SECRECY, AND THE NEED TO BE A "LEARNING" INSTITUTION

A second set of difficulties surrounds a somewhat contradictory problem that is nevertheless inescapably linked to the situation described above. It is the situation raised when a nation's strategists make intellectually "lazy" assumptions—essentially holding that their current strategic thought, doctrine, and tactics will be perfectly adequate to deal with the new situations, technologies, and circumstances they are facing. In other words, they tell themselves that there is nothing fundamentally different about the emerging situation that might require a fresh viewpoint or anything radically different to be done militarily. This, of course, is merely reinforced by the natural bureaucratic inertia of large institutions like navies. The danger is that strategists might misinterpret or, worse, overlook the potential advantages being offered by the new technologies and tactics in the

light of the changing circumstances. In short, they may convince themselves that the new opportunities offer only incremental or evolutionary improvements to the way in which business has always been conducted when in fact real alternatives are at hand that could generate disproportionate and asymmetric advantages. They therefore miss their chance, through a sort of "hegemonic complacency."

In this case the Royal Navy, preoccupied with the minutiae of naval technology and the prospects for a second Trafalgar, seemed to be very slow as an institution to recognize that the industrial age had changed the entire notion of naval warfare forever, with particular implications for a nation with the world's largest navy and a global trade dependency. From this point onward, naval decisions were going to depend less on decisive engagements at sea per se than on how such engagements might impact the broader and more mundane business of safeguarding the nation's economy and generating necessary combat power in its widest sense. In short, the business of exercising "command of the seas" had widened considerably. For a country for which naval might underwrote its very survival as a great power, this was a surprising oversight.

Fisher may have appreciated the need for a radical change, but he certainly made it no easier for the institution to move in this direction by shrouding his thoughts in secrecy and forming committees of like-minded individuals to give his projects the merest fig leaves of objectivity and legitimacy. Disdainful of explaining himself to anyone, Fisher kept his ideas close to the chest.[35] This was presumably an element of control, so that until the last moment, he might work in the margins to "engineer" the endorsements he wanted. Whether this preference was motivated by concern for security or for more personal gain it is impossible to say. What is clear, however, is that it was unusual, if not unprecedented, in British naval policy making. It certainly had an adverse effect on public awareness and perception of the naval issues of the day, a consideration that in Great Britain's case was significant.[36] Inevitably too, it generated resentment and suspicion, particularly from Fisher's peers with other ideas, a tension that was eventually to impair his ability to function as an effective leader of the navy.[37]

One option that might have helped him clarify the various technological, institutional, and manning pressures would have been a formally constituted naval staff. The idea had been mooted for a number of years; Fisher himself had long talked of such a thing in connection with the development of war plans, going as far as to propose an additional member of the Admiralty Board who would be "absolutely dissociated from all administrative and executive work and solely concerned in the preparation of the Fleet for War."[38] It was fast becoming clear that, with the increasing administrative burden of training and equipping an industrial-age navy, the First Sea Lord's traditional responsibility for both

those matters and the fleet's war plans and readiness was simply too much for a single man, no matter how capable. However, Fisher, once established as the First Sea Lord, was not at all helpful in the establishment of a "War Plans Division" at the Admiralty; in fact, he is on record as opposing such a move.[39] The reasons for this change of heart are unclear, although it is difficult to avoid the conclusion that it had at least something to do with the inevitable loss of authority for the titular "head of the navy." Instead, Fisher persevered with his unofficial committees, which, though easing the physical burdens involved, did nothing to foster a corporate sense of shared responsibility as an official staff would have done. Worse, they failed to "institutionalize" or guarantee the development of strategic thought when the First Sea Lord was otherwise occupied.

In this light, and despite his early support for a naval war college, he never took advantage of the assistance that might have been possible from this body, nor did he seem interested in its teaching or developing naval strategy for his later consideration.[40] Instead, he seemed satisfied with infrequent correspondence with members of the faculty who shared his viewpoint, as a way of gaining their endorsements. The net result was that there was little or no connection between the bright young minds in the service and the business of developing naval strategy per se. In fact, the crucial value of informed strategic debate was not inculcated in the navy as a whole, and its absence continued to elicit little comment. Put another way, the Edwardian Royal Navy was not a "learning institution"—one in which the input of ideas high and low on the command chain is both encouraged and expected, and one where the appropriate mechanisms are firmly in place to ensure the widest possible dissemination. This was a critical shortcoming that, when coupled with Fisher's penchant for secrecy and "behind the scenes" activity, did not serve the institution well when it was trying to make sense of changes of such magnitude and complexity.

In the end, these failings became self-fulfilling prophecies. At the crucial juncture, when the battle-cruiser strategy needed its fullest possible explanation and support, Fisher was fatally distracted by chronic and increasingly virulent disagreements with his senior admiral afloat, Lord Charles Beresford. Although brought to a head over the issue of war plans, the disagreements went far deeper and centered on an increasing resentment by senior officers of the overbearing and imperious way in which the office of the First Sea Lord could drive through a program of reform without a healthy and active debate in service circles.[41] For the battle-cruiser idea, this turbulence was fatal, as there was no one else to carry the torch. Similarly, and because the rationale of the new industrial-age mission of commerce protection had not been debated widely, the logic of Britain "forcing the pace" in this direction, on the grounds that Britain would benefit more

than its competitors, was lost on the wider naval establishment. As a result, the fact that the difficulties suffered by the French and Russians had only created a temporary, not a lasting, interlude was not appreciated. In short Britain, following an outdated imperative, missed the opportunity to take a huge initiative in naval strategy, one that it was uniquely placed to capitalize upon.

Finally and before concluding, mention has to be made of a seemingly valid counterpoint to all of this—the simple fact that despite not having responded in a particularly innovative fashion to the technological promises of the age, Great Britain surely won the naval arms race and successfully headed off the threat from imperial Germany. In fact, it can also be argued that had the reformers actually been more successful and the Admiralty managed to divert more money toward submarines in particular, the net result might have been—given the arguably exaggerated estimates of the capabilities of submarines for sea denial at the time—*more* and not less vulnerability to concentrated naval pressure in home waters. While it is almost impossible to predict accurately the outcome of the submarine contest that might have resulted, the two happy outcomes mentioned above owe more to the strategic limitations imposed on Germany by its "risk fleet" strategy than they ever did to any British activity. Great Britain was indeed lucky that its opponent turned out to be, if anything, even less prone to accept naval strategic innovation beyond the battleship than Britain was. Had this not been the case, and had it faced a set of strategists as globally aware and agile as those in some quarters of the French navy, events might have turned out quite differently. In other words, Britain's success in the First World War occurred in spite of, and not because of, the quality of its naval thought.

WHAT CAN THE U.S. NAVY LEARN FROM THIS CASE?

To achieve maximum impact in a complex and multifaceted subject, the four main recommendations that have been discussed above are restated in a deliberately simplified way, paired for convenience, and rendered in a rather unconventional "bullet" form.

Avoid "Lazy" Assumptions; Become a "Learning Institution"

Although a lot of historians have criticized the Edwardian Royal Navy for a "paucity of professional thinking," this charge rather misses the mark.[42] As ideally this article has shown, there seemed to be no shortage of the right ideas around, but somehow the authors of those ideas, Fisher included, were simply unable to convince the institution of the need for a fundamental shake-up in naval thinking. As a result, the navy as a whole did not see itself in a new light—as performing different types of missions to effect the same ends. Looked at another way, it was not a "learning institution," capable of the necessary analysis

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and discussion to support the large leaps of faith needed to confront the new age. In fact, the key point of the late Victorian engineering revolution—namely, the hugely increased mobility of large steamships—was almost completely missed by the Admiralty. The result was a disappointing and expensive merger of the new capabilities into the existing, obsolete service rationale, a compromise that ultimately left the nation poorly placed to regain the initiative a few decades later.

This is a lesson that the U.S. Navy simply has to grasp. As the British case proves, once an institutional failure of this sort takes place, it is almost impossible to recover. This is because the long timeline needed for the development of the new capabilities, coupled with the massive expenditures required, set against a finite, and often declining, defense budget, effectively poses a "one shot" decision—sink or swim! When the merits or otherwise of your first move finally become clear, the parameters will have moved on still farther—and you will be either on the "power curve" or hopelessly behind it. If you are behind, the only future seems to be a loss of primacy and ultimately of strategic relevance, which is effectively what happened to the Royal Navy after the First World War. In this light, the nation that maintains a healthy amount of both technological and doctrinal innovation in all mission areas is most likely to be best poised to reap the eventual benefits.

As for Technology, Innovate—but Don't Overspecialize

The U.S. Navy of the twenty-first century obviously needs to nurture and develop a more questioning professional service culture. The key is widespread and thorough professional education right across the strata of decision makers, such that a culture of risk taking and evaluation at all levels is encouraged. This is not to say that the Navy should throw money at a whole range of increasingly outlandish projects in the hope that "something sticks"—far from it! It should, however, critically and continuously assess the potential scope of each advance and how it might affect America's position, doing "just enough" research to keep the country consistently better placed than others to make a hard move when either the technology matures or changing circumstances demand.

Perhaps the most important point for the U.S. Navy to grasp is the strategic freedoms conferred by its position as the premier sea power. As the possessor of the world's largest navy, the United States is in a uniquely advantageous position; its sheer size and the natural inertia within the system will continue to shield it while it makes these transitions, something that is simply not true for any other nation. For its competitors, by contrast, a rapid achievement of systems parity with the U.S. Navy (or a key superiority, in some specific area—for example, antiship missiles) is the goal, and any research that might threaten this is automatically shunned. This makes these nations innately less able to respond

to change, no matter how innovative they may appear on the surface—because they are constrained by an overriding pressure that is simply absent from the American considerations.

The British were halfway there, in that they were innovating, but their poorly educated and parochial officer corps was simply incapable of collectively making the necessary switch in thinking from the battle line to global power projection as the key naval mission area. The U.S. Navy cannot afford to fall into the same trap, basically assuming that its sheer size—for all its benefits that we have noted—somehow confers an exclusive and inherent "right" to the rather different type of sea control outlined in CS-21.

Finally, and inexorably linked to the above, there is the question of how to approach emerging technology. This article has highlighted the difficulties of relying on radical and unproven advances during periods of strategic uncertainty. However, beyond the purely mechanical difficulties of predicting when given technologies will mature, there is the broader issue of the sorts of questions the strategist should be exploring. There has been a tendency in the past few decades to develop mission sets that make the best use of available equipment, rather than seeking technological solutions that best address the widest range of possible strategic outcomes. Put another way, in our eagerness to find answers to "today's problems" and incorporate new technologies, it is possible to become too fixated on a specific mission set, against a particular foe—and then be essentially outmaneuvered by a shift in the broader strategic environment. We would then find our military optimized for operational and strategic circumstances that are no longer very pertinent to national interests. This is the classic "being overly prepared to fight the last war," or the war that you *want* to fight, as has been seen time and time again in history. To a certain extent this is an inevitable consequence of the human learning process, one that is unlikely to be entirely eliminated, but we nonetheless need to be on our guard, particularly when opinions become excessively polarized as a part of the surrounding political debate.

In the end, though, the case we have examined was not simply another instance of good intentions let down by technology. It is a salutary warning of the powerful and often unforeseen impacts that a combination of human elements, changing strategic imperatives, and the characteristically erratic and risky promises of technology can have upon even a well structured and mature strategic plan. Such institutional and bureaucratic considerations are of crucial importance; they can collectively undermine even the best "classical" strategic ideas, just as surely as can the passage of time. After all, Fisher was, in the words of Marder, "an extraordinary man, not to be judged by normal standards."[43] A gifted administrator, blessed with immense moral courage and an insatiable

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energy and drive, even he was diverted from his well considered strategic quest by this insidious combination. How much more vulnerable are we likely to be ourselves! For these reasons, therefore, we must take time to analyze such moments from history lest we be destined to repeat their mistakes in our own time.

NOTES

1. The epigraph is cited in Arthur Marwick, *The Explosion of British Society, 1914–1962* (London: Pan, 1963), p. 14.
2. J. T. Conway, G. Roughead, and T. W. Allen, "A Cooperative Strategy for 21st Century Seapower," October 2007, available at www.navy.mil/, repr. *Naval War College Review* 61, no. 1 (Winter 2008), pp. 7–19, available at www.usnwc.edu/press/.
3. For a comprehensive treatment of how the new maritime strategy was actually formulated, see Robert C. Rubel, "The New Maritime Strategy: The Rest of the Story," *Naval War College Review* 61, no. 2 (Spring 2008), pp. 69–78.
4. Admiral Sir John Arbuthnot Fisher (1841–1920), first Baron Fisher of Kilverstone, joined the Royal Navy in 1854, served in wars in China and Egypt as a midseniority officer, was promoted to rear admiral in 1890, commanded the Mediterranean Fleet in 1900–1902, and served as First Sea Lord October 1904 to January 1910 and again October 1914 to May 1915. Perhaps the most interesting (albeit not the most comprehensive) biography of Fisher is the one written by his former assistant, Captain (later Admiral) Reginald H. Bacon, *The Life of Lord Fisher of Kilverstone* (London: Hodder and Stoughton, 1929). Bacon was also the first captain of Fisher's technology demonstrator, HMS *Dreadnought.* The most authoritative biography is, of course, Ruddock F. Mackay, *Fisher of Kilverstone* (Oxford, U.K.: Clarendon, 1973).
5. A quote from the First Lord of the Admiralty, Lord George Hamilton, taken from the Naval Defense Act debates in 1889. See *Parliamentary Debates* (1889), vol. 333.
6. See John Beeler, *Birth of the British Battleship: British Capital Ship Design, 1870–1881* (Annapolis, Md.: Naval Institute Press, 2001). In particular, chapter 3 outlines the technological difficulties with the plant and chapter 10 the difficulties with endurance and the provision of adequate coaling supplies and dry docks.
7. Daniel Whiteneck et al., *The Navy at a Tipping Point: Maritime Dominance at Stake?* CAB D0022262.A3/1Rev (Alexandria, Va.: Center for Naval Analyses, March 2010). The description of the Royal Navy's global reach is on pp. 10–11, while the inference that it reoriented itself solely on Germany is on p. 42.
8. A good example of how he saw the relations between the empire, the navy, and the economy as being crucial for the health of Great Britain can be found in his "Notes by Sir John Fisher on New Proposals for the Committee of Seven," written in Portsmouth on 14 May 1904 and reproduced in P. K. Kemp, ed., *The Papers of Admiral Sir John Fisher* (London: Ballantyne for the Navy Records Society, 1960) [hereafter *Fisher Papers*], vol. 1, p. 18.
9. For Fisher's thoughts on the "suddenness" of modern naval warfare's requiring "an instant readiness for war," see *Fisher Papers,* vol. 1, pp. 16–27, and also a letter to Lord Selborne written in April 1904. For the latter see Arthur J. Marder, ed., *Fear God and Dread Nought* (London: Jonathan Cape, 1952) [hereafter *FGDN*], vol. 1, pp. 310–11.
10. For Fisher's insistence that the whole reform package be implemented "en bloc," see *Fisher Papers,* vol. 1, pp. 16–21, which includes the "*The Scheme! The Whole Scheme!! And Nothing but the Scheme!!!*" exhortation. Time and space do not permit a detailed description of all the aspects of his reforms, but for the uninitiated, the main points can be summarized as follows: officer training and entry schemes

to be consolidated so as to produce modern, technically proficient thinkers; old, obsolete ships to be scrapped en masse, thereby reducing operating costs and releasing manpower (for new ships) and jetty space/facilities; the naval reserve to be reconstituted as "nucleus crews" (two-fifths of complement) for the continuous manning of modern ships cycling through reserve status, thereby improving fleet readiness; the current, home defense (anti-invasion) alignment of the battle fleet to be replaced by using submarines and flotilla craft for home defense, thus freeing up the capital ships for global trade protection; and new classes of battle cruisers to be developed to form these "flying squadrons" stationed at Britain's key points of interest around the world, ready to surge naval power wherever it was needed—for which great speed, hitting power, and endurance were required. Finally, these squadrons were to be controlled by a revolutionary new wireless link, "the war room system," to the planners in Whitehall. The term "battle cruiser" used in this article actually comes from a later point in the story, when it was recognized that these vessels would have to serve in the battle line. In this time frame they were more correctly termed "armored cruisers," but in order to distinguish them from these earlier ships, which were still being built at the time, the author has used the terms "battle" or "super" cruiser.

11. Some of the resistance that was to be offered to these vessels was apparent even before the first were completed. In Brassey's *Naval Annual* for 1907, for example, the editor was of the opinion that the *Invincible* class, having the armament of a battleship, would never be released for cruiser duties: "any admiral having *Invincible*s in his fleet will be certain to put them in the line of battle," even though their lack of protection would make them vulnerable. On this basis alone, he recommended that the type not be repeated. See Thomas Brassey, ed., *Naval Annual* (Portsmouth, U.K.: J. Griffin, 1907), p. 9.

12. For a discussion as to why Fisher ended up devoting a lot of energy to promoting HMS *Dreadnought,* arguably at the expense of his battle cruiser, see the author's recent article "HMS *Dreadnought* (1906): A Naval Revolution Misinterpreted or Mishandled?" *Northern Mariner/Le marin du nord* 20, no. 2 (April 2010), pp. 175–98. This is a complicated story, but in essence the article argues that *Dreadnought* was pushed as an interim type because it made more sense at the time to get the technology (turbine propulsion and all big guns) to sea quickly rather than wait for the longer build time of the *Invincible*s. Given the overall resistance to the battle cruiser idea, it was simply not possible to get the Admiralty solidly behind the type in time to make a difference.

13. Marder's classic work on the Fisher era is his *From the Dreadnought to Scapa Flow: The Royal Navy in the Fisher Era, 1904–1919,* 5 vols. (London and New York: Oxford Univ. Press, 1961–70). The majority of his observations on Fisher can be found in the first volume, *The Road to War*.

14. In a letter to Arthur Balfour, the British prime minister, Fisher explains the sea-denial potential of submarines in shallow seas: "In the course of a few years [it was then 1904] no Fleet will be able to remain in the Mediterranean or the English Channel! But at the same time submarines at Malta, Gibraltar, Port Said, Alexandria, Suez and Lemnos will make us more powerful than ever." *FGDN,* vol. 1, p. 294. Other letters with similar sentiments appear on pp. 253, 305–10.

15. Much has been made by some scholars as to the considerable exaggeration of the capabilities of both torpedoes and their delivery platforms during this period, but this concern is irrelevant to the arguments being advanced here. The point is that Fisher, as a torpedo enthusiast, supposed that these weapons would very soon have these capabilities, if they did not already. It therefore made eminent sense that he would take these likelihoods into account in both his strategic and materiel reasoning. In point of fact Jon Sumida quotes the ranges for torpedoes (eighteen-inch) at five thousand yards in 1906 and double that by 1908; see his "A Matter of Timing: The Royal Navy and the Tactics of Decisive Battle, 1912–1916," *Journal of Military History* 67, no. 1 (January 2003), p. 88.

16. Perhaps the best contemporary explanation of Fisher's thinking on speed and gun power in large ships is found in a lecture by Julian

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Corbett to the Royal United Service Institution that was published in July 1907 (see *RUSI Journal* 51, part 2 [July–December 1907], pp. 824–33). This lecture was instigated by Fisher himself, in response to criticisms being received from both within the Admiralty and outside. Another good contemporary discussion on the pros and cons of high speed in capital ships can be found in Brassey's *Naval Annual* for 1906, pp. 144–55.

17. Jon T. Sumida, *In Defence of Naval Supremacy: Finance, Technology, and British Naval Policy, 1889–1914* (Boston: Unwin Hyman, 1989), esp. chap. 1, pp. 3–35.

18. Quoted in ibid., p. 26. Lord Selborne was the civilian First Lord of the Admiralty when Fisher was appointed to Whitehall in October 1904 as the senior Naval Lord. The relationship was somewhat akin to that between, in today's U.S. Navy, CNO and the Secretary of the Navy—although, if anything, Selborne was closer to being the Secretary of Defense, on account of the huge predominance of the Royal Navy in the defense of Great Britain at that time.

19. Lambert first expounds his theories in a pair of articles written in 1995. The most important to our discussion is "Admiral Sir John Fisher and the Concept of Flotilla Defence," *Journal of Military History* 59 (October 1995), pp. 639–60. His whole plan is revealed in a later book-length monograph, *Sir John Fisher's Naval Revolution* (Columbia: Univ. of South Carolina Press, 1999), esp. chap. 3.

20. Fisher is extremely disparaging about the smaller, obsolescent cruiser types that were traditionally used in their twilight years to perform useful services in the policing of the distant empire. Calling them the "snail" and "tortoise" classes, he points out the waste of resources incurred by maintaining them and of manpower in manning them (crews that needed to be trained to fight) and the fact that were they to be challenged by armored cruisers—an eventuality becoming very real with the "suddenness" of modern naval war—they would be eaten up as armadillos eat up ants! See "Naval Necessities" (written 1903), in *Fisher Papers,* vol. 1, p. 30.

21. See "Naval Necessities," app. H, "The Strategic Distribution of the Fleet," a paper circulated to the Admiralty Board in November 1904 and reproduced in *Fisher Papers,* vol. 1, p. 161. The "five keys" were Singapore, the Cape of Good Hope, Alexandria, Gibraltar, and Dover. These were "imperial fortresses" (as originally described by John Colomb) and possessed the necessary dockyards and coal, not to mention protection, to make basing a fleet there a viable proposition. Possessions like these were almost unique to Britain at the time.

22. For a thorough description of the strategic rationale behind the submarine and battlecruiser combination see Jon Sumida, "Geography, Technology, and British Naval Strategy in the *Dreadnought* Era," *Naval War College Review* 59, no. 3 (Summer 2006), pp. 89–102.

23. In the later stages of his first monograph, Lambert demonstrates that in the eleventh hour before the First World War (January 1914), Winston Churchill, the cabinet, and the Admiralty worked out a possible "deal" that would largely substitute submarines for at least two of the battleships ordered in the 1914 naval estimates. Some historians maintain that this episode demonstrates that Fisher was actually successful in changing Royal Navy strategy. But it was "too little, too late." The dreadnought race had already run its course, and the High Seas Fleet and the soon-to-be-renamed Grand Fleet were locked in a strategic "face-off" that had effectively paralyzed innovative strategic thinking on either side. See Lambert, *Sir John Fisher's Naval Revolution,* pp. 295–300.

24. An exception here would be Charles Fairbanks, Jr., who makes this very point. See his "The Origins of the *Dreadnought* Revolution: A Historiographical Essay," *International History Review* 13, no. 2 (May 1991), pp. 246–72, esp. p. 247.

25. Erik Dahl's "Net-centric before Its Time: The Jeune École and Its Lessons for Today," *Naval War College Review* 58, no. 4 (Autumn 2005), pp. 109–35. The words *jeune école* mean, literally, "young school." This was a group of reform-minded, midgrade officers in France, who, under the leadership and tutelage of Adm. Théophile Aube, were angry at the complacency and inactivity in the naval leadership and anxious to implement reforms

emphasizing merit over birthright. This group also looked to restore France's maritime pride by challenging Great Britain. Their methodology was to target areas where Britain was weak, specifically focusing on torpedo attacks to weaken the blockading battle line and on commerce raiding against Britain's huge merchant fleet. Central to their concept was decentralization, whereby younger officers, in command of smaller and more lethal ships, were to have more say in the direction that the navy took. In strategic terms, their concentration on the secondary effects of a collapse in the shipping-insurance market was masterful. With Great Britain carrying considerably more than 50 percent of the whole world's sea trade, it stood to reason that its economic interests would suffer disproportionately high penalties from any loss of confidence in the ocean-trading market.

26. Ibid., pp. 122–25. Although Dahl does not recognize that it was primarily the shifting of focus from Great Britain to Germany, in terms of the likely naval opposition, that really doomed the Jeune École rationale, he does explain that the school ultimately failed in its quest to restore the French navy to prominence.

27. The armored cruisers of the Russian *Rurik* and French *Jeanne d'Arc* classes were typical, and had the nations worked in conjunction, squadrons of these ships in the Pacific, Mediterranean, and Atlantic would have posed a credible threat, at least insofar as their capabilities were understood by the British Admiralty. For a good summation of this threat, see Theodore Ropp, *The Development of a Modern Navy: French Naval Policy, 1871–1904* (Annapolis, Md.: Naval Institute Press, 1987), pp. 240–53, 284–98.

28. Alfred von Tirpitz, the incoming naval minister, in a memorandum to the kaiser dated 15 June 1897 and entitled "General Considerations on the Constitution of Our Fleet according to Ship Classes and Designs," had expressly ruled out commerce raiding as a suitable strategy against the British. He termed it "hopeless, because of the shortage of bases on our side." See Jonathan Steinberg, *Yesterday's Deterrent: Tirpitz and the Birth of the German Battle Fleet* (London: Macdonald, 1965, and New York: Macmillan, 1966), pp. 208–23.

29. For a historian with this opinion, see John Brooks, "Dreadnought: Blunder, or Stroke of Genius?" *War in History* 14, no. 2 (April 2007), pp. 157–78. Brooks makes the point that in the strategic context of 1905, evolutionary designs for the battleships and cruisers of the 1905–1906 estimates would have made more sense, and he speculates, with the benefit of hindsight, that they might have delayed and reduced the intensity of the dreadnought race between Britain and Germany.

30. See, for example, an article by William H. White (a previous director of naval construction and the designer of the *Royal Sovereign* class of battleships, which had set the pattern for the genre prior to the advent of *Dreadnought*), "Admiralty Policy and the New Naval Estimates," *Nineteenth Century* 59 (April 1906), pp. 601–18. On page 613 he makes the point that with cordial relations with France and the United States and with Russia in the doldrums, the present was *not* the time to force the pace: "Our unrivaled shipbuilding powers enable us to pause and judge the situation, because even starting at a later time than the others, Britain can still build a useful superiority faster than anyone else."

31. There is evidence in Fisher's correspondence that although he always personally believed that the leap to the battle cruiser could be made without an interim stage, he was finally in a minority of one in his Committee on Ship Design in the fall of 1904. See a letter written to the journalist Arnold White in 1908, in *FGDN,* vol. 2, pp. 188–89. Some earlier references from Lord Selborne, minuted on his copy of Fisher's "Naval Necessities," and intended for Fisher, may also have been relevant here; words to the effect that "the Japanese don't seem to agree with you about battleships [their demise]" may have cautioned him. *Fisher Papers,* vol. 1, p. 41.

32. The crucial point is that Fisher was surely aware of these advances before he made his dreadnought decisions in 1905. Looking back through his correspondence, although the earliest mention of it comes from 1906, it is clear that the Admiralty had been interested in the device since 1904 and was largely satisfied with the inventor's claims. John Jellicoe, a Fisher protégé and fellow gunnery officer, had been instrumental in promoting Pollen's equipment; it is therefore inconceivable that

Fisher had not been kept informed of progress. See Fisher's letter to the new First Lord, Lord Tweedmouth, recommending that the apparatus receive national patent protection, in *FGDN,* vol. 2, p. 87.

33. For a thorough description of the Pollen apparatus, see Jon T. Sumida, "British Capital Ship Design and Fire Control in the Dreadnought Era: Sir John Fisher, Arthur Hungerford Pollen, and the Battlecruiser," *Journal of Modern History* 51, no. 2 (June 1979), pp. 212–17. See also John Brooks, "All Big Guns: Fire Control and Capital Ship Design," *War Studies Journal* 1 (1996), pp. 36–52. Sumida's summation has largely been corroborated in the more recent Norman Friedman, *Naval Firepower: Battleship Guns and Gunnery in the Dreadnought Era* (Annapolis, Md.: Naval Institute Press, 2008).

34. For an explanation that supports the pragmatic conclusion that the Fisher team was right to proceed with the battle cruiser on the basis that "no insuperable difficulties could exist in the solving of the long range fire control problem" see Brooks, "All Big Guns," pp. 36–52. For an explanation that takes issue with this, as well as with numerous other technological points, while explaining the "Dreyer table" controversy, see a review essay by Jon Sumida, "Gunnery, Procurement, and Strategy in the *Dreadnought* Era," *Journal of Military History* 69, no. 4 (October 2005), pp. 1179–87. These two papers represent the current positions on either side of the unresolved interpretation of the fire control story.

35. See for example his famous quote in a letter to Arnold White. "*The one great rule in life is NEVER EXPLAIN! Your Friends don't want an explanation. They believe in you. The friends who want an explanation ain't fit to be friends. Your enemies won't believe any explanation! I never in all my life have ever yet explained, and don't mean to!*" *FGDN,* vol. 2, pp. 388–89.

36. In this light, it is important to appreciate that British naval policy in this period was a subject of intense interest to the professional classes. Leaders (editorials) in newspapers, debates in both houses of Parliament, and columns in society magazines were regularly devoted to the "naval issues" that were perplexing amateur and professional alike. It is also fair to say that the Admiralty took note of (and used) these avenues regularly—particularly under Sir John Fisher.

37. See in particular an anonymous article, "A Retrograde Admiralty," *Blackwood's Edinburgh Magazine* 177 (May 1905), pp. 597–607. It was widely attributed to Rear Admiral Sir Reginald Custance, lately the Director of Naval Intelligence, who was extremely critical of Fisher's methods. Custance criticizes Fisher for deliberately undermining the authority of the other Admiralty Board members, in particular the Controller of the Navy, a junior member but the one charged with the material health of the fleet. He was therefore effectively turning the board into a personal dictatorship. He also offers contrary opinions on each and every one of Fisher's main reforms. There is evidence that the article particularly incensed Fisher. Similar sentiments are also seen in the well researched article by William White, "Admiralty Policy and the New Naval Estimates," cited above. White condemns the secrecy surrounding *Dreadnought* as dangerous and indeed superfluous to military security, summing up, "A policy withdrawn from discussion and criticism is not likely to be the best."

38. For a perceptive look at the whole issue of a naval war staff and Fisher's schizophrenic behavior in this regard, see Paul Haggie, "The Royal Navy and War Planning in the Fisher Era," *Journal of Contemporary History* 8, no. 3 (July 1973), pp. 113–31, esp. p. 115, and *FGDN,* vol. 1, p. 232.

39. Haggie, "Royal Navy and War Planning in the Fisher Era," p. 116.

40. Ibid., p. 130.

41. The anonymous "A Retrograde Admiralty," cited above, was typical.

42. Bryan Ranft, in "The Protection of British Seaborne Trade and the Development of a Systematic Planning for War, 1860–1906," accuses the late-Victorian Admiralty of an "alarming poverty of thought." See Bryan Ranft, ed., *Technical Change and British Naval Policy, 1860–1939* (London: Hodder and Stoughton, 1977), pp. 3–4. This has been a popular sentiment with historians in the wake of the First World War, and while much can be attributed to a revulsion, natural at the

time, for all things military, it should also be remembered that a part of the specific remit of the First Lord was to review, comment upon, and explain the professional merits or otherwise of the various plans and strategies of his service.

43. *FGDN,* vol. 1, p. 12.