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BRITISH MILITARY THINKING, 1902-1914

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CONTENTS

INTRODUCTION . . . . . . . . . . . . . . . . . . . 1
I. THE COMMITTEE OF IMPERIAL DEFENCE . . 5
II. THE ARMY . . . . . . . . . . . . . . . . . . . 16
III. THE NAVY . . . . . . . . . . . . . . . . . . . 37
CONCLUSION . . . . . . . . . . . . . . . . . . . 82

NOTES . . . . . . . . . . . . . . . . . . . . . . . 87
SELECTED BIBLIOGRAPHY . . . . . . . . . . . 96

ILLUSTRATION

DREADNOUGHT . . . . . . . . . . . . . . . . . . . 47

MAP

BRITISH AND GERMAN NORTH SEA BASES-1914 . . 73
The twelve years between the end of the Boer War (1899-1902) and August 1914 were a period of military reform for Britain. As a result of Army errors and deficiencies, the military came under criticism and ultimately reform. The Army was transformed from an unwieldy conglomeration of units into an expandable striking force ready for overseas service. Though the Navy had not been involved in the South African fighting, its defects were readily apparent in the light of postwar reform. So too were those of high level military policy making which was then revamped through the creation of the Committee of Imperial Defence.

British confidence was badly shaken by the period of Army defeat in December 1899 termed "Black Week." During this week of disaster, a British field army superior in size to that of the Boers was defeated at several points with large sections of the British Cape Colony falling under Boer control. Manpower losses were light in comparison to European battles—the British lost 1,700 men at their bloodiest defeat while the Austrians had suffered over 20,000 casualties at Sadowa—yet these losses were still severe for a nation used to police actions against poorly armed and disciplined natives.¹ Victory was finally achieved only by
employing over 450,000 regulars, reservists, militia, and volunteers against approximately 50,000 Boers. Sufficient men were found by stripping the United Kingdom of regular troops.\textsuperscript{2} To prevent a reoccurrence of the South African difficulties, the \textit{Report of His Majesty's Commissioners on the War in South Africa} recognized that the Army would have to be reorganized into a striking force for imperial and continental use.\textsuperscript{3} Without such a reorganization, 1914 might have found the British as unprepared as in 1899.

Britain's strength was in her Navy. An efficient Army might keep the Empire pacified, but it was the British Fleet which preserved the "Pax Britannica" and which made Britain a world power. In comparison to the conscript armies of France and Germany, Britain's Army was insignificant. Yet Britain was not cowed by continental land powers because she was an island. The English Channel was a protective moat for her as long as the Royal Navy was supreme and there were no means of reaching Britain but by sea. Because of this, the Fleet was Britain's principal offensive and defensive weapon.

Naval preeminence did not exist unchallenged. The "Continental" school favored a strong conscripted army to allow the option of intervening directly in European wars. The opposing "Blue Water" theory believed that a strong navy was enough protection for an island nation and that British troops should never again be risked in continental
warfare. Blue Water advocates won adoption of their theory because it did not require conscription, odious to the British public since the time of Cromwell, and it allowed the spending of a smaller amount of the British national income on armaments than was true for continental powers supporting large armies. The basic difference between the two schools was in their approaches to fighting a war. In the early eighteenth century the Continentalists managed to have a British army committed to European action under Marlborough. Likewise Wellington led a small British army in Spain against Napoleon and had a large British contingent with him at Waterloo. At the same time Blue Water principles were adhered to as Britain used her Fleet to seize enemy colonies and build an empire. Wellington's army in Spain, it must be remembered, was originally landed and then supplied by sea, and the Royal Navy attacked Napoleon indirectly by establishing a blockade of France. Britain's choice of Blue Water strategy, then, was not based purely on economic grounds but was rather a combination of these and historical precedent.

Whenever British military thinking is discussed, it must be viewed in the light of a preference and in fact a more vital need for the Navy rather than the Army. During the period following the Boer War the urge to reform, caused by incompetency in the war, must also be taken into account. Once this is done, a clearer understanding can be gained of
British military thinking during the period from 1902 until 1914.
I. THE COMMITTEE OF IMPERIAL DEFENCE

The Committee of Imperial Defence (C.I.D.) was able—through its unique structure—to examine various defence problems, make recommendations carrying great weight, and coordinate the efforts of the service departments with those of the rest of the government. After the war began, the C.I.D. served as a center for directing British effort and for evaluating various military alternatives.

Three bodies preceded the C.I.D. with functions similar to those it would eventually have. The Colonial Defence Committee* examined and prepared land defence plans for individual colonies, but never took an overall approach to imperial defence. Officers from both services were members of the Joint Naval and Military Defence Committee in an effort to coordinate thinking between the two. Positive results failed to develop because there was virtually no support forthcoming from the departmental ministers. At the Cabinet level there was the Defence Committee. It failed to achieve the C.I.D.'s later success because it lacked an

adequate support structure, proper leadership, and professional service personnel as members. 

As a result of the Army's poor performance against the Boers, the Elgin Commission was appointed to investigate military defects as revealed by the war. Its report, issued in July 1903, criticized "the planning, the reserve and manpower system, stores and supplies, and War Office organization." The report gave official impetus to the spirit of reform already growing since the end of the war. In 1902 St. John Brodrick, Secretary for War, and Lord Selborne, First Lord of the Admiralty, threatened the then Prime Minister, Arthur Balfour, with their resignations if the Defence Committee was not reorganized to oversee imperial defence. They proposed a committee to consider "those most difficult and important problems of all, viz.: those which were neither purely naval, nor purely military, nor purely naval and military combined, but which may be described as naval, military, and political." 

Under this pressure, and seeing the need for reform himself, Balfour transformed the Defence Committee into the C.I.D. with the Colonial Defence Committee and the Joint Military and Naval Committee becoming subcommittees of it. The Duke of Devonshire, former chairman of the Defence Committee, chaired the first meeting of the C.I.D. on 18 December 1902. The Prime Minister sat as an ordinary member until a year later when Devonshire retired and Balfour
assumed the chairmanship. Membership, to be determined by the Prime Minister, included the ministerial and professional heads of the service departments as well as their intelligence chiefs. A major innovation, on the Defence Committee, was the provision of a clerk to take minutes of meetings. This was a deviation from Cabinet procedure and was to be the first step towards establishing a secretariat.

The first report of the Esher Committee, set up to reorganize the War Office, stressed in January 1904 that there had been "no means for co-ordinating defence problems" during the war. It further said that there was no agency to attack these problems as a whole and to define "the proper functions of the various elements" making up imperial defence. The report concluded by recommending the formation of an agency to ensure that "peace preparations are carried out upon a consistent plan, and, . . . . that, in times of emergency, a definite war policy upon solid data can be formulated." As of this time Balfour had not made these additions to the C.I.D.'s functions and so consequently its final form was yet to be achieved.

Lord Esher, chairman of the committee, applied personal pressure for the formation of an effective C.I.D. A confidant of the King,* prime ministers, cabinets, and military

*Admiral Sir John Fisher wrote of Esher in 1906: "You know he is a 'man of affairs' and is more in the hidden counsels of the King and his Ministers (and 'His Majesty's Opposition' also!) then perhaps any man living!" From Arthur
authorities—he was able to influence important minds in favor of the Esher Committee's recommendations. On 14 February 1903 Esher wrote the King "that the Prime Minister is a Member but not the President of the Defence Committee; an arrangement perhaps natural under existing circumstances, but which should not be taken as a precedent." Balfour was, of course, to follow this advice and become chairman. Esher wrote Balfour in January 1904 on the equally vital question of a secretariat for the committee. He recommended that the secretary should not be a member of the C.I.D. and should only express an opinion when requested to do so by the chairman. His duties, Esher wrote:

... would be to prepare material for the Prime Minister, collected from these sources, [the Admiralty and the War Office] as well as from other departments, in order that the Defence Committee [the old name for the C.I.D.] may lay down principles of action, which would in certain eventuations co-ordinate the efforts of these two high professional offices.

The major innovation in Esher's recommendation was that the committee would be informed on issues independently by the secretariat before the professionals were to be called as witnesses. By this means the C.I.D. would be expert enough to evaluate military advice critically and therefore make more intelligent recommendations.

Remembering Esher's advice, Balfour created the organi-
zation of the permanent C.I.D. in his famous Treasury Minute of 4 May 1904. Parliament approved the proposal later that year despite opposition by the Liberals to some specific points. It immediately won wide popularity among the press and public.\textsuperscript{11} In creating the structure of the C.I.D., Balfour both drew on the advice of men like Esher and corrected the deficiencies demonstrated in the committee's predecessors.

The principle of collective responsibility for the Cabinet was retained by making the C.I.D. advisory; decision making power and hence responsibility remained with the Cabinet. C.I.D. recommendations were influential because the Prime Minister and cabinet ministers were the members making them. Military professionals were included as full members so they could express their opinions without being inhibited by the presence of the politicians. The Prime Minister, the person ultimately responsible for defence and war planning, was kept well informed on military developments via his position as chairman.\textsuperscript{12} Flexibility of membership was also an important quality of the C.I.D. Only the Prime Minister was a permanent member; the others were appointed by him and served at his pleasure. This allowed him to give temporary membership to military and civilian experts when their knowledge would add to a current committee investigation or discussion. As early as 1903, the Canadian Minister of Defence and Militia, Sir Frederick Borden, was
asked to attend several C.I.D. meetings to which he added his views on dominion participation in imperial defence. In 1905 Esher was appointed as a special non-governmental member of the C.I.D., and Balfour continued as a member after he and the Conservatives had left office. These men were able to serve because of the committee's membership flexibility. The diversity of opinion thus gained was vital for the consideration of a topic as broad as imperial defence.

When the Liberals came to power in 1906, there was some question as to whether the New Prime Minister, Henry Campbell-Bannerman, would retain the C.I.D. Many Liberals feared that the military professionals might be able to force through a recommendation unpopular to Parliament which, since the professionals were not responsible to it, would have to take action against the ministers. R. B. Haldane, future reorganizer of the Army and a supporter of the C.I.D., convinced Campbell-Bannerman to retain it as a valuable facet of the government. Nevertheless, the new Prime Minister took less interest in the C.I.D. than had Balfour, consequently fewer meetings were held (sixteen sessions under Campbell-Bannerman compared with sixty under Balfour). Of course it has already been explained that the question of ministerial responsibility brought up by the Liberals in 1906 had been the reason why Balfour had only given the committee advisory power in the first place.
Permanent subcommittees of the C.I.D. eventually included the Colonial (changed after 1911 to Overseas) Defence Sub-Committee, Home Ports Defence Sub-Committee, Air Committee, and Committee on the Co-ordination of Departmental Action. Numerous ad-hoc committees were formed for investigating issues not covered by the permanent ones. The use of subcommittees allowed the time necessary for the investigation and analysis of complex defence problems.\textsuperscript{18} The subcommittee system complemented the C.I.D.'s flexibility on other matters by allowing the experts on particular questions to study them and then report to the full C.I.D. without the need of wasting the latter's time with routine investigative work.

A boost came to the committee in 1908 when the efficient Maurice Hankey was appointed to it as Assistant Secretary and then made Secretary in 1912. He was to hold this post until 1938.\textsuperscript{19} In the year Hankey joined the C.I.D., only two meetings were held and no more than nine papers were discussed. Three years later eight meetings took place and over fifty papers were submitted for consideration.\textsuperscript{20}

By 1914 subcommittees of the C.I.D. had studied such diverse subjects as the treatment of neutral and enemy shipping during war, wartime food requirements of the British Isles, censorship, the defence of key colonial bases, and war risk insurance. Besides studying military problems, which also received the attention of the service departments,
the C.I.D. was able to enter into the civil and economic sphere where they could not. Discussion and resolution of the invasion and conscription issues also took place in the C.I.D. as did the battle between the Continentalists and those supporting the Blue Water school. Strategic planning, on the other hand, was initiated at the War Office and the Admiralty; they were also responsible for much of their own war preparation. A grave discrepancy in the record of the C.I.D. was that it failed to consider what administrative changes in the government would be necessary in time of war. Even so, the committee's contributions far outweigh this oversight, major though it was.

Another C.I.D. failure came when it tried to coordinate activity between the War Office and the Admiralty. As early as 1905, Balfour had suggested that the committee should take up the question of combined operations between the two services, but discussions did not materialize. Subsequently, though, a group of officers representing both services began meeting informally at Whitehall Gardens to discuss the matter. Fisher, fearing a possible naval commitment to Continental ideas held by the Army, collapsed the talks by withdrawing the naval contingent. The talks were never reopened. Hence a disaster like Gallipoli was certain to occur because of the lack of cooperation between the services. The C.I.D. did, nonetheless, provide a forum where military plans and information were reviewed by committee
members representing both services.

Many officers at the Admiralty and the War Office feared that the C.I.D. might supplant the service departments in the area of military policy making. The prestige received by ministers who were members of the committee was resented by those who were not. Fisher's antagonism stemmed from his desire to keep Admiralty matters secret and also from his dislike for C.I.D.'s Secretary, Sir George Clarke (1904-07) because of Clarke's criticism of the Dreadnought. Fisher's successor as First Sea Lord, Admiral A.K. Wilson also opposed any C.I.D. meddling with the planning of naval operations. Esher commented in 1909 that recommendations made by the C.I.D. were received by the services "as the amiable aberrations of a few well-meaning but harmless amateur strategists." The committee's influence with the military began to grow only after the addition of Hankey, with his objectivity and superlative tact, as Secretary.24

In 1905 the C.I.D. recommended the formation of a committee to inspect and reorganize, if necessary, the defences of home and colonial naval bases. General Sir John Owen chaired the committee which did its work, both at home and abroad, in 1905-06.25 It drew up plans which were approved "for rearming the defences of the great naval bases at Portsmouth, Plymouth, and Chatham." Plans laid down for the defences at Rosyth (see Map 1) were later revised by the Owen Committee's successor, the Home Ports Defence Sub-
Committee. No provisions were made for defences at Cromarty while the Fleet's eventual wartime base, Scapa Flow, was not considered as more than an emergency anchorage. Hankey later wrote in *The Supreme Command*, concerning overseas bases, that because they had been designed against France and not Germany whose coast could easily be blockaded: "Political and strategic considerations necessitated putting our resources into mobile ships and armies and cutting down to an absolute minimum our expenditure on passive defences." This decision favored both Blue Water advocates and those who saw Germany as the only likely foe for Britain in the near future.

The now famous War Book began in 1910 with a paper submitted to the C.I.D. by the General Staff entitled "Questions Requiring Inter-Departmental consideration." A major complaint in the paper was the lack of cooperation between the services. Later in the year Hankey wrote a paper called "Co-ordination of Departmental Action on the outbreak of War," which dealt with the same topic. The question of creating a war book was taken up in January 1911 by a subcommittee chaired by Sir Arthur Nicolson, the Under-Secretary of State for Foreign Affairs. In December Esher again brought his influence to bear by proposing that the War Book Subcommittee be made permanent; this was done soon after. The first printed proof of the War Book was approved in April 1912; in December the Colonial Office notified the Dominions
of the War Book's existence so they could adopt a similar system.  When war came in 1914, the War Book allowed the government to smoothly move onto a wartime footing except for the Treasury whose war book was described by Hankey as being "jejune and inadequate." The War Book was such a success that Haldane was able to write Hankey on 2 August 1914: "The arrangements appear to me to be working out almost faultlessly." 29

Without doubt the C.I.D. made a great contribution to Britain's war readiness. If not for the War Book and the committee's other accomplishments, confusion and disorder might have reigned to the extent of dwarfing that of 1899. The advisory nature of the committee has been criticized, but the presence of the Prime Minister and cabinet ministers as members meant those who made the recommendations would also have the power to adopt them. Above all, it was the C.I.D.'s capability to study the broad question of imperial defence that made it an inestimably important element of Britain's war preparedness and military thinking.
II. THE ARMY

Army reform was directly a result of its failures in the Boer War. The major innovations were an Army Council, a General Staff, Haldane's reorganization of the field army, and the institution of new tactics. Another important development was the opening of staff talks with the French Army, thus drawing the nation closer to a continental commitment.

The Esher Committee, also known as The War Office (Reconstruction) Committee made three main recommendations in 1904: the formation of an Army Council similar to the Board of Admiralty, the creation of a General Staff, and the reorganization of departmental responsibilities at the War Office. Part of this reorganization was accomplished by the establishment of the C.I.D. Its other recommendations were adopted during 1904 which set the stage for Haldane's own reform program.

Army related policy questions were to be considered and decided by the Army Council. As constituted, it included seven members—three civilian and four military. The Civilian Members were the Secretary of State for War, the financial secretary, and the Parliamentary Under-Secretary, in charge of all civil business other than finance. The four Military
Members had responsibilities divided into: operations and military policy, recruitment and discipline, supply and transport, and armaments and fortifications. Assisting each of the members was a director. While the members considered matters of policy, the Esher Committee specified that "administration will devolve upon the Directors." It also advised the "appointment of Military men who have not hitherto been connected with existing methods, and are, therefore, not likely to be embarrassed by the traditions of a system which is to be radically changed." Esher wrote Balfour in December 1903, stressing that the Army Council should "be set going at once, as a representative body, i.e. representative of the great branches of the" War Office with the details of its organization being left until after its formation. On 6 February 1904 Letters Patent instituted the Army Council and at the same time eliminated the post of Commander-in-Chief in order to make room for it. The War Office Council and Army Board was also abolished at the same time. This was the substance of the Army Council which would be complimented by the creation of the General Staff.

By an Army order, the General Staff was officially created in January 1905, but it remained a skeleton until the Army Council was able to define its functions and select and appoint the officers to man it. Esher complained of the nearly two year delay which occurred, saying that the Army Council had "done practically nothing" regarding
the Staff during that time. In fact, it was not until October 1906 that the new Liberal Government brought the Staff up to operational level. Staff duties were divided between the Director of Military Operations, the Director of Staff Duties, and the Director of Military Training. The Chief of the General Staff took over the responsibility of preparing the Army for war from the defunct office of Commander-in-Chief. As a result of the decision by the Imperial Conference of 1907 to adopt similar military "methods and forms" throughout the Empire, the General Staff was renamed the Imperial General Staff (I.G.S.). The creation of the Staff at last provided the British Army with a body to make detailed plans and studies of future possible operations.

Also adopted was the Esher Committee's recommendation for the provision of a set of manuals covering all aspects of military training and another on more specialized subjects. Guidelines were set up in them for staff work from the highest to lowest levels. This greatly facilitated the rapid expansion of the Army in 1914 because officers at all levels understood the fundamentals of training and organizing an army. Field Service Regulations, Part I-Operations-1909 was adopted as the field army's general manual in 1909. General Sir Douglas Haig, as Director of Military Training and later Director of Staff Duties, was responsible for it and Part II-Organization and Administration-1909 which defined and explained the "duties and functions of officers,
units, and commands in the Lines of Communications."^9

War Office departmental responsibility was divided, as a result of the Esher Committee's Report, between the Chief of the General Staff, the Adjutant-General, and the Master-General of the Ordnance. The welfare and maintenance of the troops was the responsibility of the Adjutant-General while the Master-General of Ordnance oversaw everything to do with artillery and fortifications. Above all the Esher Committee stressed:

The line of cleavage between the duties of the several staff officers should be . . . rigorously preserved. It is essential to prevent the confusion of staff arrangements which has hitherto prevailed.

It further said that military administration should be kept decentralized "if the Army is to be trained and to exercise the initiative and the independence of judgement which are essential in the field."^10 With the completion of these reforms, the remaining need was for the reorganization of the actual field army.

The difficulties in raising an army for use against the Boers dictated a reorganization of the British field forces into some sort of striking force which could be quickly assembled for action in either a colonial conflict or major European war. The need for reform did not ensure success as three secretaries for war and two governments grappled with the problem before a solution was found. Even then the reorganization was attacked from all sides before
it was finally adopted.

Brodrick, Secretary for War 1900-03, failed to reorganize the field army because of the ambitious nature of his proposals. His plan was to create a force of six army corps. This was far too large considering the declining recruitment rates and the probable negative reaction of voters to the higher taxes which would have resulted. Brodrick's goal was to have three army corps plus a cavalry division, a force of about 120,000 men, ready at a moment's notice for service anywhere. Though Brodrick termed his scheme a "paper transaction," it still would have required the addition of 50,000 men at an increase in expenditures of £3 million. The total increase in Army estimates was estimated at £5 million over those of the previous year.

Joining in the debate was a rising young politician named Winston Churchill. He questioned the need to have three army corps ready for immediate service when one was "quite enough to fight savages, and three not enough even to begin to fight Europeans." By 1903 Brodrick's blueprint was still just that, only the First Corps at Aldershot had begun formation, and it did not even have its brigadiers.

Brodrick's successor at the War Office, H. O. Arnold-Forster, also failed in his attempt to create an effective striking force. Arnold-Forster proposed the creation of a General Service Army of long term service, nine years with the colors and three years in the reserves; and a Home
Service Army with short term service, two years with the colors and six in the reserves. The General Service Army, approximately the same size as Brodrick's three corps, was to serve as a striking force. It was to be composed of men legally old enough to serve overseas so that the reserves would not be eaten up replacing those too young as had occurred in the past. The Home Service Army was to be the counterpart of the continent's conscript armies, without conscription, and was to be available to reinforce the General Service Army, if necessary. Administrative districts, recommended by the Esher Committee, were to replace Brodrick's system of army corps districts for organizational and business purposes. One grave oversight of the plan was its failure to incorporate any of the auxiliary forces such as the militia into the system. Before Arnold-Forster's proposals could be adopted, the Balfour Government fell.\textsuperscript{14}

Coming to the War Office with the new Liberal Government in 1906, Haldane would accomplish a complete reorganization of Britain's field forces by 1909. Haldane's first move was to gather around him a group of young officers such as Haig and Colonel Gerald Ellison (former Secretary of the Esher Committee) to advise him on his reform schemes. He described them as "a thinking school of officers who desire to see the full efficiency which comes from new organization and no surplus energy running to waste."\textsuperscript{15} With their advice, Haldane was ready to challenge and then reshape the
the British Army.

In order to create his desired six division Expeditionary Force, Haldane had to actually reduce certain elements of the Army to find men needed for more vital areas. His proposed reduction of the Brigade of Guards by two battalions raised criticism from the pro-military faction. Esher told the King that General Sir John French would rather give up four batteries of artillery than see the Guards reduced. In contrast, members of his own party like a Mr. Vivian called for more economy. On 9 May 1906 Vivian moved: "That this House of Commons is of the opinion that the growth of expenditure in armaments is excessive and ought to be reduced."16 Haldane's method of shifting men to fill gaps was the best way to achieve both efficiency and economy. An example of this was his reorganization of the artillery. Haldane inherited more guns than gunners because of Brodrick's expansion of the regular field artillery for his six corps. Modern artillery's faster rates of fire required longer ammunition columns to carry the extra shells needed. As a result, only forty-two out of ninety-three batteries in 1906 could have been manned along with their ammunition columns. Haldane's solution was simple, yet decisive in its results. He manned the ammunition columns with men freed by eliminating 300 guns of the Militia Royal Garrison Artillery.17

On 17 July 1906 Haldane presented his proposed reforms
to the House of Commons. He claimed that his reforms would restore public confidence by making "people feel they are getting value for their money." Though his proposals carried with them considerable monetary savings, Haldane indicated that he had the full backing of the Army Council because it realized the need for economy and would thus see to it that "every penny spent on the Army is spent on fighting efficiency." Then he went on to outline his plan for an Expeditionary Force of six "great Divisions." This, containing most of the regular army, was designed for overseas use while other forces would be used for home defence. Total manpower needed for the Expeditionary Force was 150,000 men of which 50,000 would be with their units, 70,000 would be reservists, and 30,000 in the militia. Significantly, the militia was to contain no infantry and only 3,200 yeomanry cavalry. The remainder belonged to the artillery, the Army Service Corps, and the engineers of the Expeditionary Force. In a Special Army Order of January 1907, the exact organization to be adopted by the Army was laid out. In addition to the six infantry divisions there was to be a cavalry division, made up out of the four cavalry brigades, for use as an independent force. From four mounted infantry battalions and two cavalry regiments, two cavalry brigades were created to be used as a close reconnaissance force for the infantry. Artillery was allotted to the divisions, none being held back as a corps reserve.
All this was accomplished, and £2,036,000 was cut from the 1907-08 estimates, mainly due to reductions in infantry and artillery superfluous to the reorganization. The size of the Expeditionary Force was, said Haldane, "limited by the establishment necessary to preserve in order to find drafts and reliefs for the forces abroad." For seven years the regular army was to remain at the size determined by Haldane until the necessities of war required radical expansion.²¹

Next, Haldane turned his attention to transforming the auxiliary forces into a cohesive home defence force and reserve for the regular army. The British Army in 1898 consisted of over a half a million men, not counting colonial and native troops, but they were divided up among a number of different organizations:

- regular army overseas: 124,000
- regular army at home: 131,000
- the army reserve section "A": 5,000
- the remainder of the army reserve: 73,000
- the militia reserve: 30,000
- militia effectives: 65,000
- yeomanry effectives: 10,000
- volunteer effectives: 230,000²²

Despite the large numbers on paper, it was found difficult to find even a few divisions available for South African service in 1900. This was because the regular army based in Britain was an integral part of the home defence force. Many

*These reservists were legally capable of joining the regulars without the need for a proclamation to call them onto active duty. They were in their first year of reserve.
of the auxiliary units sent in the place of regular ones proved to be lacking in both quality and training. What was needed, was a force of regulars for overseas duty and another force specifically designed for use at home.

By Haldane's plan, the British Army was to consist of "two categories and two only." Further division, he said, would "end in leaving us weak and ill organized everywhere." He wanted an Army consisting of a "Field Force" and a "Territorial" or home force. The Field Force had already been created by him through his Army Order and was "to be . . . ready in all respects for mobilization on the outbreak of a great war." The next step was to form the Territorials who were to be mobilized at the same time as the regulars but were to train for six months before being called upon for the "support and expansion" of the Expeditionary Force.

The auxiliary forces—the volunteers, yeomanry, and militia—would be transformed into fourteen infantry and fourteen cavalry divisions plus the necessary support units. The unit organizations themselves were transferred so that, except for the horse artillery, almost everyone could trace its origins back to either the yeomanry or volunteers. Ten cyclist battalions and a Territorial Medical Corps were formed at the same time. Administration was to be placed in the hands of the County Associations. Each would be responsible for recruitment, clothing, and general maintenance of
the units under its control. War Offices grants were made on the basis of how many men each association cared for. Training was exclusively under the control of the War Office.25

Rather than reorganizing the auxiliary forces by Army Order and then having Parliament accept or reject his estimates because of it, as had been done for the reorganization of the regulars, Haldane needed an act of Parliament. This was because his proposed changes would affect provisions of the Army Act, the Reserve Forces Act of 1882, and the Reserve Forces and Militia Act of 1898. In addition, the County Associations would need statutory authority in order to carry out their role of administering public funds and property. Because of the economies in his earlier reforms, Haldane enjoyed more support from his own party; because of his success in increasing the Army's efficiency, men such as Esher and Balfour were warm to his proposals.26 Nevertheless, the opposition he faced was strong and deep rooted. General Evelyn Wood, a former Quartermaster-General, warned Ellison that, "If you organize the British Army, you'll ruin it." Liberals such as Lloyd George and Churchill attacked the proposals, introduced in February 1907, because they created too large a force while Unionists and some foreign observers considered it too small. Other critics termed the Territorials a "phantom army" which would never be able to mobilize itself for war. When war did come, the County of
London Association, controlling more units than any other, was able to quickly bring all its units up to strength, even those thirty percent below establishment. Finally, there was opposition from diehard Tories who saw his reforms as an attack on privilege. Ellison explained that:

Each unit had come to be regarded, in a sense, as the property of the Commanding Officer who conceived it to be his duty to preserve intact its status and its financial stability. Accordingly the prospect of drastic changes . . . was far from popular.

Despite this opposition, the necessary legislation passed the House of Commons in June 1907 by a vote of 283 to 63. Haldane gave Balfour much of the credit for its easy passage. In the House of Lords, the Unionist leader, Lord Lansdowne, was "sympathetic and reasonable" so he too supported the reforms. This assured passage in the Lords.

As of 1 April 1908, the old volunteer units were dissolved with their men being given the opportunity to join the new Territorials. By 1 May over 72,000 had; by 1 June 144,620 men had been recruited out of an official establishment of 302,000. Over 100,000 men took part that year in the Territorials' first summer training session and by the end of the year the Territorials totalled over 207,000 men. One reason for this rapid filling up of the ranks was the high press and popular support received. As a result, Haldane, when introducing his estimates in 1910, was able to tell Parliament that Territorial numbers had reached 88.5 percent of establishment. He had summed up his hopes for
the Territorials when he first introduced his proposal:

And our belief is that at the end of that time a period of transition . . . not only would they [the Territorials] be enormously more efficient than the Volunteers or Yeomanry forces at this present time, but that they would be ready, finding themselves in their units, to say, "We wish to go abroad and take our part in the theatre of war, to fight in the interests of the nation and for the defence of the Empire." 30

Unfortunately, when war came, Kitchener scrapped this whole system and started his own, one which centered on himself and thus was much like the one revolving around the Commander-in-Chief which Haldane had replaced. 31

Only a few minor changes were made in the Territorial system after 1908. In 1909 the Veteran Reserve, renamed the National Reserve, was created; it numbered 5,464 officers and 185,372 other ranks by January 1913. The militia was slowly dismantled by incorporating some units into the regular army and by drawing off men for the new Special Reserve. Only 636 men remained in the militia and 64 in the militia reserve as of 1913. 32 Another innovation came when the Ward Committee recommended in 1907 the formation of an Officer's Training Corps. This was instituted in 1908 with Senior Divisions in nineteen universities and Junior Divisions in 152 Public schools. The number of schools participating steadily increased until there were 630 officers and 23,701 other ranks in the program as of 1912. 33 At this point, Haldane's major reforms were completed. The remaining years before the war were spent by him and his successor in
defending the Army from critics and readying it for war.

Conscription was avoided by the Haldane reforms because it would have been politically unfeasible for the anti-militarist Liberals. This brought about criticism from former Commander-in-Chief and then President of the National Service League, Lord Roberts. Roberts and other conscriptionists believed that only a large compulsory service army could ensure Britain's future position as a world power. Though he opposed Haldane's volunteer force, Roberts was not opposed to reform. He explained that: "We only differ as to the means by which that object can be obtained."³⁴ The C.I.D. examined the question of conscription in 1908. In spite of the argument made by Colonel Charles à Court Repington, military correspondent for The Times, that compulsory service was "indispensable in order to safeguard the country against invasion" and that "it would improve the physique, discipline and morale of the whole nation," the C.I.D. found that "Universal Training" was unnecessary.³⁵

British tactical doctrine was based on the experience gained in the Boer War and on observation of the 1904-05 Russo-Japanese War. Other nations also drew conclusions from these events. German theorists said that a future war would be decided by masses of heavy artillery which would be necessary to breakdown trenches and overpower the expected fierce defensive fire. The French trusted in infantry
assaults closely supported by light quick-firing mobile artillery. British experts were convinced that the avoidance of rigid doctrine and the reliance on good field-craft (the use of terrain to cover attacks rather than exposing them to withering fire in the open) along with rapid and accurate rifle-fire would be the road to victory. In 1904 Esher described the men he had seen at that year's maneuvers as being full of "zeal and keenness." A foreign observer made note of the Army's tactics during the same maneuvers:

In their manoeuvres the British infantry showed great skill in the use of ground. Their thin lines of khaki-clad skirmishers were scarcely visible. No detachment was ever seen in close order within three thousand yards of the enemy. Frontal attacks were entirely avoided.

These tactics showed great evolution from the close order parade ground formations which had met disaster against the Boer riflemen.

This trend, however, did not carry over to the cavalry. After the failure of the cavalry's shock tactics in the Boer War, the lance and sword were taken out of use with the emphasis being put on the rifle in a mounted infantry role. Churchill supported the decision in Parliament when he declared that he "could not understand how anyone who looked at the matter from an impartial point of view could possibly prefer the lance to the rifle." His opinion was based on his experience as both an officer and war correspondent in South Africa. Nevertheless, in
1907 the lance, absolutely useless for anything but shock action, was reintroduced. Additional evidence for the permanent abolition of shock tactics had even been demonstrated in the Russo-Japanese War where the "rifle was supreme." The only charges made were with the rifle, "some very deadly." General Sir John French, who had himself abandoned shock tactics in South Africa, chastised the Russian cavalry because, "They were devoid of real Cavalry training, they thought of nothing but getting off their horses and shooting." Infantry manuals assessed the situation more realistically as they advised that cavalry charges could be repulsed by small arms fire without the need to even halt an advance. In 1914 mounted cavalry was soon relegated to the rear areas for its own protection. Unfortunately, former cavalry generals like French and Haig, in positions of power once the war began, continued to make bloody infantry assaults attempting to open a gap wide enough for the cavalry to exploit. Everytime success seemed assured, the cavalry would be held up by a few machineguns or other obstacles. Near the end of the war another kind of cavalry, tanks, were finally able to fill the exploitation role.

The deployment of the British Expeditionary Force (B.E.F.) was a great source of controversy throughout the decade preceding the war. British commitment to a Continental strategy began with talks between the British and
French general staffs, but there was much opposition to it. Admiral Wilson suggested in 1905 that if war came with Germany, the Army should be used to carry out amphibious operations against the German coast. A War Office study, done at the prompting of the Admiralty, concluded that the German Baltic coast was an impossible target for such an operation because of the existence of the German Fleet and the presence of impressive coastal defences; any attack against the Kiel Canal, with the forces thought likely to be available, was also declared doomed to failure unless it received considerable French assistance. 42 From the War Office point of view, this study effectively ended further consideration of a Blue Water strategy.

A war game analysis, the same year, of a hypothetical Franco-German war convinced the General Staff that in such a war the British would have time to transport the B.E.F. to the battlefront. This was assuming that Britain would enter the war only after Belgium neutrality was violated, several weeks into the fighting, thus giving Britain preparatory time. The General Staff predicted that, for fear of antagonizing Britain, Germany would not invade Belgium except as a last resort. A General Staff estimate predicted that the Army could have two corps in Antwerp within twenty-two days of a war declaration. 43 These conclusions meant that intervention by the B.E.F. in a European war was logistically feasible.
General Sir James Grierson, Director of Military Operations (D.M.O.), initiated a study in 1906 which concluded that colony seizing and amphibious landings would have little effect on a continental war. It declared that only a combined British-French counterattack of the expected German invasion of Belgium could be decisive. If Belgium were not invaded, British assistance should still be given to the French because, it said, without it Germany would be victorious. This study was the first to consider assistance to France without Belgian neutrality being violated. Clarke, C.I.D. Secretary, also advised direct aid to France in the event of war without an invasion of Belgium by Germany. A Whitehall conference on 6 January 1906 agreed that at the outset of a war British military cooperation should consist of either an expedition to Belgium or direct assistance to the French Army defending its frontiers. The Admiralty representatives argued for coastal raids but were defeated when they could not guarantee naval superiority in the face of a German fleet trying to interfere with a landing. As of 9 January, Sir Edward Grey, Foreign Secretary, sanctioned the continuance of talks already started with the French General Staff, but he did not yet inform Campbell-Bannerman of their existence. In mid-January Campbell-Bannerman also approved of the conversations. But before he did this, the Prime Minister had Grierson and the French representative, Major Huguet, make a written statement
declaring that the discussions did not commit Britain to any course of action. 46

By May the talks had produced detailed railroad timetables for the transport of the B.E.F. to the front once it arrived in France. Information was gained which revealed that, in case of invasion, the Belgians would concentrate their army around Brussels for the defence of Antwerp. Plans were laid for the B.E.F. to concentrate on the Meuse by the tenth day after declaring war. An inspection of the Belgian and French armies by Grierson found him much more impressed by the latter, causing him to press for joint planning with it rather than with the Belgians. During the remainder of 1906 the General Staff became more and more convinced that any action to support Belgium would have to be made in cooperation with France. Grierson's successor, General Sir Spencer Ewart, continued his preference for direct aid to France. Officially, though, no commitment had been made. In fact, in April 1907 Campbell-Bannerman told the French Prime Minister, Georges Clemenceau, that British public opinion would not "allow of British troops being employed on the Continent of Europe."47 On 28 October 1908 the C.I.D. began an inquiry into what government policy should be regarding a continental commitment. Its report, ratified by the entire C.I.D. on 24 July 1909, advised that British intervention should not entirely hinge upon a violation of Belgian neutrality. It also provided for, subject to Cabinet approval, the
concentration of four British infantry divisions and one cavalry division on the French left. 48

Little more was done until General Sir Henry Wilson became D.M.O. in August 1910. His calculation that the Germans would come through Belgium with as many as forty divisions against thirty-seven to thirty-nine French ones meant that the B.E.F. could be the edge needed for victory, especially if all six divisions were sent. 49 General Wilson presented the War Office's detailed plans to the C.I.D. in 1911. The Admiralty representative, Admiral A. K. Wilson was unprepared to offer anything but vague alternatives to the War Office plan and so it was accepted by the C.I.D. 50

An agreement between General Wilson and General Dubail, the French Chief of the War Ministry Staff, on 20 July 1911 provided for, in the event of war, the landing of the B.E.F. at Le Havre, Boulogne, and Rouen between the 4th and 12th days of mobilization, and that it would then be concentrated in the Maubeuge area starting on the 13th day. General Wilson summarized his position to Grey and Haldane as being: "First, we must join the French. Second, we must mobilize the same day as the French. Third, we must send all six divisions." 51 Churchill wrote Lloyd George on 31 August 1911 that General Wilson had informed him that if war came, British strategy would be to "move into a friendly Belgium" and to "threaten the German flank in conjunction with the Belgian army." 52
All the War Office plans hinged on a British declaration of war on Germany. This was up to the British Cabinet. Once war was declared, however, there was little room for variance from the War Office's plans since to do so would take up precious time. Britain, then, was essentially committed to a Continental strategy if war was declared on Germany.
Because of her island status, the Royal Navy was by far Britain's most basic military arm. Fisher was able to write in 1910 with more than just a little justification that, "Comparatively, the Navy is vital and the Army is a plaything!" Among the duties of the British Fleet was the protection of Britain from invasion, the defence of British shipping, the transport of the Army to the continent, and the defeat of the enemy's fleet. To accomplish these goals the Navy had to have a superiority at sea which would ensure victory with little chance of failure, for so much depended on its success. Naval superiority was the guiding reason for Fisher's reforms, the Anglo-German naval race, Churchill's reforms, and the opening of discussions with the French for a British withdrawal from the Mediterranean Sea.

Fisher became Second Sea Lord in 1902 and then First Sea Lord on 21 October 1904. In this position, which he was to hold until 1910, Fisher transformed the British Navy, and naval warfare in general, from using sailing age tactics in an age of steam to one employing long range gunnery, torpedoes, and eventually aircraft. He was well endowed with the forceful character necessary to impose
his reforms on an unwilling Navy. Fisher once described himself as: "I entered the Navy penniless, friendless and forlorn. I have had to fight like hell and fighting like hell has made me what I am."² Obviously a man like this would not shrink from imposing unpopular reforms if he thought them necessary.

Personnel reform began with the Selborne Scheme of 1902, launched in 1903-05. It made officer training uniform for the three naval branches—executive, engineering, and marine—until men became lieutenants (at about age 22) when they would be allowed to specialize in one of the three areas. Upon attaining the rank of commander, the specialty was to be dropped unless the individual had no wish to command a ship. Many officers did reach high rank by remaining with an engineering or marine specialty. The Selborne Scheme was instituted because under the former system of separate training for each branch esprit de corps had suffered as the executive branch* had considered itself superior to the others. Marine officers had had few shipboard duties and so felt out of place until the Selborne Scheme gave them the basic training necessary to run a ship and to understand what was going on. Executive officers, on the other hand, learned what propelled a ship while engineers were educated in how to fight one. Hence officers of the three branches became somewhat interchangeable and

*In charge of navigation, gunnery, and torpedoes. From Marder, From Dreadnought to Scapa Flow, pp. 28-30.
made officers of each branch more sympathetic to the problems of the other specialties.

Admiral Charles Beresford, commenting on the situation previous to the Selborne Scheme, declared: "In 20 years time Naval Officers will wonder how a steam navy could possibly have been run and administered by an executive who knew nothing whatever about steam or mechanical appliances."

Indeed, it also seems unlikely that such officers could have gotten the most out of their ships. This, in an age when technology was invading warfare more and more, i.e. bigger and more powerful ships.

Better officers were needed to man these more sophisticated ships, but at the same time many potential officer candidates were excluded from the service because of the high cost of naval education. In fact, only 1½ million out of Britain's total population of 43 million could afford it. There was also opposition from the officer-class to the recruitment of the lower classes as officers. The Naval and Military Record echoed this sentiment in 1910 with: "We should view with grave apprehension any attempt to officer the fleet at all largely with men of humble birth." Fisher attacked the existing system on the grounds that it contradicted Britain's democratic principles and because it wasted potential naval genius. Horatio Nelson, after all, would have been excluded by the turn-of-the-century system. Fisher strove to have all fees abolished at the Naval Colleges.
of Osborne and Dartmouth. Though not abolished entirely until 1947, they were reduced 50 percent in 1913 under Churchill for one-quarter of the entrants of which three-fifths were to be the sons of needy parents.  

Another Fisher reform came in the much neglected area of training for high level officers. He managed to have instituted in 1900 a War Course. It had as part of its curriculum the study of naval history, strategy, tactics, and international law. Officers were selected for it by appointment, making the course mandatory and providing full pay unlike the previous voluntary courses where officers served on half-pay. In 1903 the original eight month course was divided into two four month sections. They were expanded in 1908 to include the examination of problems sent to them by the Director of Naval Intelligence. The War Course, originated by Fisher, has continued in one form or another to the present day though its name has changed. This was an important step toward a more logical and systematic approach to the study of naval war, but at this point Fisher failed to take the next vital step of establishing a naval staff.

The system of reserves was altered so that they would be more capable of manning the Fleet when the need arose. Merchant seamen and fishermen were trained in modern ships at sea rather than, as they had been, in shore batteries and harbor hulks. In order to keep a hold on experienced
men, the Royal Fleet Reserve was formed of men leaving the Navy. Amateur seamen such as yachtsmen were incorporated into the Royal Naval Volunteer Reserve, formed in 1903. Boys, who had previously been trained on rigged training vessels, were now trained in land schools, in nucleus-crewed vessels, and in armored cruisers. These changes brought the reserves into contact with up to date fighting methods.

As Commander-in-Chief of the Mediterranean Fleet (1899-1902), Fisher had fought for earlier promotions, arguing that "The increasing average age of our Admirals is appalling! In a few years you'll see them all going about with gouty shoes and hot water bottles!" A committee under Lord Goschen was set up to study the promotion problem. By an order-in-council of 1903, its recommendations were adopted. They reduced the minimum age limits for high level officers by three to five years and lowered the retirement age by two to three years so that the youngest captains would average 36 to 37 years of age, rear admirals 41 years, and vice admirals 52 years.

Fisher's concern for the welfare of the "Lower Deck" increased naval morale. Rations were improved through the provision of shipboard bakeries to replace "hard tack" and seamen were finally allowed the simple luxury of using knives and forks to eat with. Cruel and brutal punishments were forbidden; pay and the chances of promotion were
increased. These simple reforms, by Fisher, made naval life more attractive so that a better quality of man would be willing to serve in the Fleet.

Turning to matériel, Fisher first reorganized the ship reserve system then went on to change the matériel itself. Under the old system there had been two reserves—the Fleet Reserve containing ships ready for mobilization or commission but not immediately needed and the Dockyard Reserve consisting of obsolete ships needing considerable time to ready for service and not likely to be used except in an emergency. To replace this, Fisher introduced his nucleus-crew system whereby the ships of the Fleet Reserve were to be manned by two-fifths of their required crews, including all the specialists and officers needed for battle. The ships took practice cruises so their crews could familiarize themselves with the handling and qualities of each ship. The ships were organized into three reserve divisions which operated together as units for 10-14 days a year and so were capable of joining in fleet actions without great difficulty. Upon mobilization, the Fleet Reserve could be brought up to strength quickly by filling out the crews with men from onshore barracks and the instructional establishments. Balfour said in 1906 that "this new Reserve scheme has augmented the fighting power of the British fleet not once or twice, but threefold." Fisher, himself, called it "the keystone of our preparedness for
war" because it meant that the whole sea-going fleet was "instantly ready for war." Fisher found men for his nucleus-crew system by scrapping many of the obsolete ships Britain had maintained in the far corners of the globe for little more reason than "showing the flag." Most of these ships were either wooden with masts and rigging, had muzzle loading guns, or were protected with armor plating too thin to stop a modern projectile. A special committee was appointed to investigate the situation. As a result, 154 ships were struck off the effective list. Fisher calculated the savings at £845,000 per year on repairs alone. When an earthquake occurred in 1907 in Jamaica, United States relief vessels arrived first because of Fisher's reductions. This caused a public outcry against Fisher's program because it seemed to reduce British prestige. Fisher responded:

... I see the Globe has a leading article attacking the Admiralty for not having an ambulance corps of cruisers and gunboats distributed over the earthquake area of the globe! The Navy Estimates would be a hundred millions if everyone had everything!

The costs of keeping a naval presence in strength everywhere would have weakened British efforts against the German challenge and would probably have bankrupted her.

To face the German threat, Fisher introduced the principle of concentrating the Fleet in home waters (around the British Isles) during wartime and having it close by while peace prevailed. Under the former distribution of fleets,
the Mediterranean Fleet consisted of twelve battleships, the Channel Fleet (not always in the Channel) eight, and the Home Fleet eight of the older battleships. Fisher brought the Home, renamed the Channel Fleet, up to seventeen battleships by adding four withdrawn from the Mediterranean and five from the China station. The Channel Fleet was renamed the Atlantic Fleet and was to contain eight of the newest battleships. Based at Gibraltar, it was able to reinforce quickly either the Mediterranean or Channel Fleets if necessary. In a letter of 24 January 1907, Fisher boasted that these moves had allowed for the manning of 12 battleships and armored cruisers, 48 destroyers with all attendant auxiliary vessels, and a 25 percent increase in the size of the nucleus-crew system. Even if Fisher's figures were exaggerated, the redistribution of the fleets put Britain's strength in northern European waters, where it was being challenged.

Britain's huge preponderance of battleships gave her a wide edge over Germany as long as technology did not come up with a new weapon to make it worthless. Fisher was determined to see that Germany would not be first to come up with such a development by coming up with one himself. Before becoming First Sea Lord, he recognized the need for a change in battleship design. His Flag-Captain at Portsmouth, Sir Robert Arbuthnot, recorded him saying that gunnery ranges would have to increase to keep up with the progress
being made in torpedoes. Fisher indicated that the Russians had torpedoes that could hit from 3,000 yards at 24 knots and "soon it will be 5,000 yards, and then where is your gunnery going to be?" It was true that prior to 1903, gunnery ranges averaged about 3,000 yards. Prompted by some French and Italian successes at lengthening this range, the British Navy began its own tests which showed in 1898 that future ranges were likely to be at around 5-6,000 yards. At that distance the range could only be determined by observing the splashes of salvoes of at least four shells and preferably more. This could only be accomplished by ships having a number of guns of the same calibre, making the installation of multi-sized guns obsolete. Admiral Bacon commented in his biography of Fisher that "it was evident that our future battleships should be armed primarily with a sufficiency of guns of one uniform size." Thus the need to build a ship with guns of the same size was evident to Fisher. The question, though, still remained, what would its design include?

Designs for the first "all-big-gun" battleship as well as for the first battlecruiser were drawn up under Fisher while he was stationed at Portsmouth as Second Sea Lord. W. H. Gard, the Chief Constructor at Portsmouth, advised on questions relating to the hull, weights, and displacement. The Managing Director of the Fairfield Shipbuilding and Engineering Company, Alexander Gracie, supplied
information on the boilers and machinery. Various naval officers suggested armament schemes. The designs were almost complete when Fisher became First Sea Lord in October 1904. According to Jane's Fighting Ships, 1919 the designs called for:

a battleship with 12 12-inch guns arranged in pairs along centre line; three pairs of guns at bows, three stern, the inner barbettes rising in tiers, so that six guns could fire ahead, six astern, and all twelve on broadside.

A commission set up to study the designs scaled them down to a ship carrying eight guns, "two forward, two aft, two on each beam." A fifth turret was later added "because it happened to fit" (see figure 1).

Fisher unveiled his creation, the Dreadnought, early in 1906. She was "larger, faster, and more powerful" than any other battleship in existence. At 21 knots, the Dreadnought was 2 knots faster than any other battleship afloat and carried ten 12-inch guns in comparison to the four 12-inch and four 9.2-inch guns of the last "pre-dreadnoughts" except for the "Lord Nelson" class which had four 12-inch and ten 9.2-inch guns. In weight of broadside, the Dreadnought fired 6,800 pounds compared to 4,160 pounds for the "King Edward" class of pre-dreadnoughts and 5,300 pounds for the "Lord Nelsons." Design success is readily apparent from the fact that every capital ship since the Dreadnought has had a primary armament of eight to twelve large guns of a single calibre. Secondary armament was eliminated except
DREADNOUGHT (February, 1906).

Normal displacement, 17,900 tons. Full load, about 20,700 tons. Complement, 802.


Cannons:
- 10-12 inch, 45 cal. 4
- 10-12 pdr. 4
- 2-3 inch (anti-aircraft, 13 pdr.) 2
- 2-12 pdr. (anti-aircraft) 2
- 4-3 pdr. 4
- 5 M.G. (1 landing)

Torpedo tubes (18 inch):
- 4 submerged (broadside)
- 6 on each side (forward)
- 3-12 inches (aft)

Armour (K.C.):
- 11"-9" Lower belt
- 8" Upper belt
- 6" Belt (bow)
- 11" Bulkhead (aft)
- 4" Belt (stern)

Armour (K.N.C.):
- 4" Main (forward)
- 3" (flat) Middle
- 2½" (loophole) (amidships)
- 4" at ends (Middle)
- 3"-1" Lower Special protection

Guns:
- Armour
- 10-12 inch, 45 cal.
- 10-12 pdr.

Torpedo tubes (18 inch):
- 4 submerged (broadside)

Machinery: Parsons turbine. 4 screws. Boilers: 18 Babcock & Wilcox in 3 groups.

Designed H.P. 23,000 = 21 kts. Coal: normal, 900 tons; maximum, 2900 tons + 1120 tons oil + 120 tons patent fuel. Nominal radius: 6000 at 10 kts.; 5000 at 10 kts.

Torpedo Notes.—Stern tube removed during War.

Engineering Notes.—Full power, 400 revolutions. One H.P. ahead, one H.P. astern turbine on each wing shaft: inner shafts, 3 turbines each (cruising L.P. ahead: L.P. astern). 4 stern turbines on each. Boiler pressure: 250 lbs., reduced slightly at the turbines. Each turbine has 9,600 blades. Main condensers: 25,000 square feet; auxiliary: 6000. Grade surface: 1500 square feet. Heating surface: 56,500 square feet. On trials she exceeded her speed for short spurts (best mile at 21.78), but barely averaged it on her eight hours’ run. Very free from vibration. Weight of machinery: main and auxiliary, 972 tons: water = 1817 tons.

Coal consumption.—Very economical at full speed, about 240 tons per day for full power. At slow speed consumption is heavy. At 4600 H.P. (19 kts.) it averages nearly 160 tons a day. At 10,000 H.P., about 250 tons per day.

Armour Notes.—Base of amidships barbettes is 8" only and all barbette bases 8" behind belt. Protective deck is 2" flat, 3" on slopes and over steering gear. Internal screens to magazines, &c., are not continuous between end barbettes.

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<thead>
<tr>
<th>Name</th>
<th>Built at</th>
<th>Machinery by</th>
<th>Laid down</th>
<th>Completed</th>
<th>Trials (mean)</th>
<th>Boilers</th>
<th>Best recent speed</th>
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<tr>
<td>Dreadnought</td>
<td>Portsmouth</td>
<td>Vickers</td>
<td>Dec. '06</td>
<td>Oct. '06</td>
<td>16,520–192</td>
<td>21,712–2604</td>
<td>Babcock...</td>
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* Was not really complete at this date. First commission began Dec., 1906. £262,500 was spent in finishing her and £100,000 of this sum was voted in 1907-8. Maximum attained 27.518 = 21.9 kts.

for twenty-seven 12-pounders designed to repel torpedo attack. The Dreadnought speed resulted from Fisher's innovation of using turbine engines rather than the then standard reciprocating engines. Turbines transformed the engine room from a hell of noise and water (needed to cool the engines) into a clean and dry place with only a hum to indicate engine operation. More important than the physical improvements for the crew, was the improved performance of the ship. Tests had shown that pre-dreadnoughts could achieve a top speed of only 14 knots, then only if the captain was willing to have the ship's engines overhauled afterwards. Even cruisers had trouble operating over long distances at 18½ knots without having serious engine damage. The Dreadnought, however, was able to sail from England to Trinidad and back at an average speed of 17½ knots without any repairs whatsoever being needed.

Because of the radical innovations introduced by the Dreadnought, criticism was to be expected. Its large size, and consequent greater cost, was attacked because this meant fewer ships could be built. With fewer ships, the critics claimed that the loss of even one would be a severe blow. The Admiralty refuted this claim by explaining:

For the increase of 1,500 tons of displacement over the "Lord Nelson" class we have obtained a much more powerful armament, a nearly equal main protection, a vastly superior secondary protection, and a greatly increased sea-keeping power.
Size was certainly not a handicap to the Dreadnought as the trend would be to even larger and more powerful ships; the "Queen Elizabeth" class would be the peak of prewar design in this area.

The all-big-gun concept was also attacked, but the larger calibre gun proved itself even more accurate than its smaller calibre counterparts during a series of tests held in 1905. At 6,000 yards the percentages of hits to rounds fired were: 12-inch, 37 percent; 9.2-inch, 25 percent; and 6-inch, 15 percent. The comparative effect of the larger shell bursting within a target ship was estimated at 70 to 1 in favor of the 12-inch gun. In target battle practice the Dreadnought fired 75 percent more weight of shell in ten minutes (21,250 pounds) than any other battleship. One proven deficiency was found in the 12-pound guns which became ineffective once torpedo range was increased to 7,000 yards. Future "dreadnoughts" received 4-inch guns as secondary armament until the 1911-12 program when 6-inch guns were introduced for this purpose.21

Complementary to the development of the all-big-gun ship was the appointment by Fisher of Rear Admiral Percy Scott in 1905 as the Navy's first Inspector of Target Practice. Within two years Scott doubled the Fleet's shooting accuracy through his method of training by constant practice instead of reading about it "out of books." The rate of fire also increased as a result of his invention
of the loading tray, dotter, and deflection teacher. Battle
target practice was set at 5-7,000 yards with the target
being a fixed 90 by 30 foot screen fired at by the ships
cruising at 15 knots. By 1907 the target itself was towed
for increased realism. As of 1908 most ships had better
accuracy at 6-7,000 yards then they had had at 2,000 yards
only a few years earlier. Out of 100 shots in 1898, 69 were
misses; in 1907, at the longer ranges, only 21 shots missed
out of every 100.22 Though some of this improved accuracy
could have been achieved with pre-dreadnoughts, it was the
dreadnoughts which took advantage of this improvement most
by delivery more weight of shell for every hit.

If the Dreadnought's offensive capabilities were suf-
ficient, the critics charged there must be defensive flaws.
Indeed the Dreadnought did sacrifice armor in order to ob-
tain extra speed, but this was a calculated risk. A paper
submitted to the Admiralty Board in 1906 concluded that the
decisive Japanese victory at Tsushima during the Russo-
Japanese War was won because the Japanese Fleet had been
able to use greater speed to take and then maintain a
superior position:

Had they not possessed superior speed, the Jap-
анese would rapidly have lost this advantage . . .
their greater speed enabled the Japanese to main-
tain their advantage and so continue the concen-
tration of fire on the Russian van until so much
damage had been inflicted that the Russians lost
all order and were crushed.23

It was logical to conclude that as long as armor was
adequate, any extra would be purely defensive while more speed would add to the ship's capability of carrying the offensive to the enemy, which was the Fleet's main purpose.

One last major criticism of the Dreadnought was that by making all existing battleships obsolete, Britain's preponderance of pre-dreadnoughts was also obsolete. Each nation was thus starting from scratch in 1906. The Admiralty countered this argument by pointing out that other nations had not been blind to the advantages of an all-big-gun ship and that one of these might have gotten a big lead by producing such a ship in secret had not Britain built the Dreadnought first.24

Included in the 1905-06 program was the world's first battle-cruiser, Invincible. She was designed to carry eight 12-inch guns and had a top speed of 25 knots. Since she had to sacrifice armor for speed, the Invincible only had the armor protection of the "Minotaur" class of armored cruiser. However, this should not be seen as a defect of the battle-cruiser for it was not supposed to fight battleships. Rather, its raison d'être was to be fast enough to hunt down and powerful enough to destroy commerce raiders, act as a fast wing or van of the Fleet, and be a strong reconnaissance force.25 Problems would arise only when the battle-cruisers were to do what they were not designed for i.e. fight battleships.

At the same time as Fisher was improving the quality
of the Fleet, he was looking for ways to economize. His greatest financial achievement was the formation of the Estimates Committee. Composed of the financial authorities at the Admiralty, with Fisher as chairman, it ruthlessly examined requests for funds, reducing or discarding those not meeting its approval. A net decrease of £3.5 million was achieved in the estimates presented to Parliament for 1905-06.26

Fisher's legacy was a Navy much improved over the one he had found, but more important, he laid the foundations in personnel and matériel upon which later reforms were built. Fisher summed up his accomplishments in 1907:

We have built the Dreadnought; we have stopped all foreign shipbuilding for 16 months; we have successfully adopted the turbine, and we have reduced Naval Estimates by 5 millions (and shall reduce them still more!), while the Navy is incomparably stronger and more ready for fighting than it was two years ago. Our Fleets are 50 percent more at sea, and we hit the target 50 percent more than we did two years ago.27

From 1898 until the beginning of the war, Britain and Germany fought a race for naval supremacy. The German naval laws of 1898 and 1900 began a construction project which was to have completed 32 battleships by 1920. Between 1900 and 1905 she laid down the keels of 12 battleships, prompting expert British opinion to predict that Germany would be the world's second leading naval power by 1906. As early as 1902, Lord Selborne had warned in a Cabinet paper that the German Fleet was designed for a contest with Britain.28
Nevertheless, Britain did not strongly react to the German challenge until King Edward VII's visit to Kiel in 1904. During the visit, Wilhelm II showed off German naval strength and by doing so stimulated the Royal Navy to action. He further stimulated it by his assertion the same year that he was "Admiral of the Atlantic." The growing German challenge was why Fisher redistributed the Fleet. Part of this redistribution was made possible by a treaty with Japan which protected British Far East interests. Also in 1904, Britain made her entente cordiale with France official, and agreement was reached with Russia during 1906-08 after the Russo-Japanese War had ended. With the United States also considered friendly, there remained only Germany to be a possible naval threat.

The 1898-1905 period of the race proved to be a failure for Germany because of her inexperience in building, the constraints of the Kiel Canal (a large battleship could not pass through it), and the superiority of the British ships themselves. Expert opinion considered German ships of this period to be markedly inferior to those of Britain. Then, of course, Fisher built the Dreadnought and the race was restarted with the disappearance of the vast British predreadnought superiority into obsolescence. Germany's first dreadnought, the Nassau was laid down in 1906.

German moves convinced many that she was Britain's only possible opposition on the seas. In 1906 Fisher wrote
Tweedmouth, the new Liberal First Lord, that "Germany is our only possible foe for years to come!"\(^{32}\) Asquith wrote in 1909 that there was no reason for Germany to build a fleet "unless for aggressive purposes, and primarily against ourselves." Grey in 1908 pointed out the difference between the German and British fleets as the following:

> If the German Fleet ever becomes superior to ours, the German Army can conquer this country. There is no corresponding risk of this kind to Germany; for however superior our Fleet was, no Naval [sic] victory would bring us any nearer to Berlin."\(^{33}\)

Even the design of the German Fleet revealed a challenge to Britain since it was built so cramped and with such a small fuel reserve that it was only fit for use in the Baltic or North Sea. Since Russia was still recovering from her losses to the Japanese and the French Navy was small in comparison to the German Fleet, Germany could only be building such a large fleet for a challenge to British naval supremacy.\(^{34}\) Coupled with the reasons already presented, this provoked a strong British desire to keep a safe margin over the German Fleet to ensure victory in any contest between the two.

Despite the fact that Germany appeared to be the only immediate threat, those in favor of a strong Navy argued that Britain should build against a two power standard (any possible combination of two navies) plus 10 percent. Fisher explained that the Board of the Admiralty could not just build against the enemy of the moment because they
"are the trustees of future generations of their countrymen, who may not enjoy the same comparatively serene sky as ourselves." In other words, Britain had to be prepared to meet a combination of powers, which though unlikely in the near future, could nevertheless develop.

British naval construction was set at four dreadnoughts (battleships or battle-cruisers) per year in 1905 by the "Cawdor Memorandum" before the Conservative Government under Balfour left office. The incoming Liberals like Campbell-Bannerman and Lloyd George were politically committed to a program of less spending on armaments so one ship was cut from the 1906-07 estimates and two from the 1907-08 unless the upcoming Hague Conference failed to slow the naval race. At the 1907 conference, German Admiral of the Fleet, Alfred von Tirpitz rejected British overtures of naval reductions as being unacceptable to the German public:

Here is England, already more than four times as strong as Germany, in alliance with Japan, and probably so with France, and you, the colossus, come and ask Germany, the pygmy, to disarm.

Therefore the Liberal Government laid down three battleships in their 1907-08 program compared to Germany's two battleships and one battlecruiser, their first.

Then, the German Reichstag upset the situation even more by amending the 1900 Navy Law in 1908 to the effect that from 1908-09 to 1911-12 Germany would lay down four dreadnoughts per year, three battleships and one battle-
cruiser. Even so, the Admiralty only requested funding for one battleship, one battle-cruiser, sixteen destroyers, and £500,000 for submarines in the 1908-09 estimates. This projected Britain having seven battleships and four battle-cruisers against Germany's predicted three and one, respectively, by 1910.\textsuperscript{39} As a result of German construction acceleration and the Liberal unwillingness to make a major increase in British naval spending, the "two power, plus 10 percent" standard was replaced by one of "60% above German strength in every class of vessels." Even Admiral Sir John Jellicoe, future commander of the Grand Fleet, agreed that the old standard had not been correct.\textsuperscript{40} This apparent slackening of the race was not to last however. The new standard did, though, represent a decrease in the number of ships Britain was committed to build.

The Admiralty asked for six dreadnoughts in the 1910-11 estimates to match Germany's expected four and Austria's two. A compromise was reached by which Britain was to have five ships each in the 1910-11 and 1911-12 programs. With the estimates topping £40 million, the Royal Navy was to have 25 dreadnoughts by March 1913 plus 2 battle-cruisers promised by New Zealand and Australia compared with a projected figure of 17 for Germany and 2 Austrian. The figures for German strength were based on the assumption that Germany's program would continue at the 1909 rate.\textsuperscript{41}

Another attempt was made at naval limitation talks
in 1909, but the German Chancellor, Bethmann-Hollweg's stipulation that an agreement be made to "exclude all possibility of attack by one party on the other" as Germany's price for naval limitation, resulted in an impasse. Talks, nevertheless did proceed on other issues, such as exchange of building timetable information and dockyard inspections.\(^42\) Grey commented in 1909 that Germany claimed her naval program was based on the naval laws passed by the Reichstag in 1898 and 1900 and amended in 1908 rather than against British building, "therefore there appeared to be no opening for negotiations." He was also alarmed by public lectures in Berlin that discussed the possibility of invading England.\(^43\) All further hope for naval reductions was soon destroyed by a German move in Morocco.

The Agadir Crisis resulted from Germany sending a gunboat, the Panther, on 1 July 1911 to Morocco in support of her African interests. This was the third serious crisis since 1905. The others had also involved an assertion of Germany's right to confer with other nations on major diplomatic matters. The German view of the Agadir Crisis was that since French absorption of Morocco seemed inevitable, France should be made to compensate Germany for the loss of her interests in the area. The British Government suspected that this compensation would include a large chunk of the French Congo and a naval base on Morocco's Atlantic coast; the Germans were already negotiating with local chieftains
on this latter point. In the world of skilled professional diplomacy, the German action was viewed as an irresponsibly provocative act. Many who had opposed British armaments changed sides once German aggression was so clearly demonstrated. Churchill, a long time foe of naval spending, wrote in an undated 1911 letter that German "action at Agadir has put her in the wrong & forced us to consider her claims in the light of her policy & methods." He even advocated joining France if a war was to break out between the two unless the French had taken a stand on "unjustifiable ground." On 21 July 1911 Lloyd George delivered his famous Mansion House speech in which he condemned German actions and called on Britain to prevent "a disturbance of international peace." If Germany remained intractable, and if peace could only be retained by Britain losing her place "in the Cabinet of nations," he declared that "then I say emphatically that peace at that price would be a humiliation intolerable for a great country like ours to endure." Surprisingly, a German base in Morocco was of little concern to the Admiralty because they felt that it could be easily isolated and captured during the first few weeks of a war. Another consequence of the Agadir Crisis was the renewal of the Anglo-Japanese Alliance. British reaction was, as Churchill had said, to Germany's means of action rather than to her demands, themselves. Agadir impelled the British to face the possibility, much more closely, of an ultimate
conflict with Germany.

It became known in London in early 1912 that Germany was considering a new naval law which would acerbate the naval race even more. Worse than additional construction, was the provision to keep the German High Sea Fleet on permanent mobilization. Adoption of permanent mobilization by the Royal Navy would have cost Britain an additional £3 million per year, plus it would have necessitated the concentration of the entire Fleet in home waters. Churchill, as First Lord, stated that any German increase in construction would be met "2 keels to 1." In addition, he said that a German fleet always in full commission "exposes us to constant danger only to be warded off by vigilance approximating to war conditions." By his calculations, the Royal Navy had to have a clear superiority in ships, ready to meet a German fleet in battle at 24 hour's notice.

The last effort to slow the naval race took place at this time with Haldane's mission to Germany. Continued Germany insistence on British neutrality in a continental war and Tirpitz's proposal for a 3:2 ratio between the British and German navies made agreement impossible. Grey refused to continue talks after this because he feared they might have jeopardized his agreements with France. The stage was now set for the last leg of the race, the one to war.

Churchill's 1912-13 estimates began a program which
would alternate between four and three dreadnoughts per year. Hence, it would run 4-3-4-3-4-3 against the original German plan of two ships a year. The new German program, however, provided for a program of 2-3-2-2-3-2. To keep the "60 percent" standard in force, Churchill proposed a new program of 4-5-4-4-4-4 (the first year's figure included the donation of a battleship from the Federated Malay States). It was Churchill's opinion that continued British building would eventually dishearten German efforts. Churchill also introduced a new standard whereby though an overall "60 percent" margin would still be kept, in home waters he declared that a "50 percent margin" was enough. Tirpitz suggested in February 1913 that a British:German ratio of 8:5 was acceptable to him, but Grey rejected the offer because of the continued building of Austria and Italy as well as because "what Tirpitz said does not amount to much, and the reason for his saying it is not the love of our beautiful eyes, but the extra fifty millions required for increasing the German Army." The 1913-14 British naval estimates were thus approved at £46,309,000, providing for five dreadnoughts against the demands by some naval advocates for six. Canadian failure to contribute expected ships caused the 1914-15 estimates to hit £51,580,000 as four dreadnoughts were to be laid down with possibly a fifth from the 1915-16 program to be started early. Reductions were promised in the estimates for 1915-16. These reductions never occurred
because of the outbreak of war.

The victor of the naval race is debatable. Britain certainly won the race quantitatively but it was much closer qualitatively (a question best answered in a comparison of the two fleets, see below). From 1905 until 1916 Germany's Fleet reached 75 percent of Britain's only once, in 1908. On average, the High Sea Fleet was about 65 percent of the Royal Navy's size. Total weight of broadside was even more in Britain's favor, almost 2:1. 56 Britain's numerical victory was wide at first glance, but her dependence on the Royal Navy for so much of her military might necessitated such a margin to ensure victory, and if qualitative factors are considered, the margin grows much more narrow.

Another consequence of the Agadir Crisis was a change at the Admiralty. Despite warnings from Grey of impending military danger, the Fleet was left scattered among several different home ports with the 2nd Division even having four days leave. Admiral Wilson, then the First Sea Lord, was in Scotland for a pleasure weekend. Meanwhile the entire High Sea Fleet was concentrated off Norway. Hankey later complained, "What a chance for our friends across the water!" Fisher's former foe Admiral Beresford declared that "if England had gone to war with Germany in July last, we should have sustained a naval disaster." Parliament also raised the question of naval preparedness. 57 Because of
this pressure, Asquith decided to make changes at the Admiralty. Reginald McKenna, the First Lord at the time, though an able administrator, was not considered the man capable of forcing new reforms on the reluctant admirals. Haldane offered to go to the Admiralty and impose reforms like those he had accomplished at the War Office. Asquith, however, considered that sending an "army man" to the Admiralty would be perceived as an insult by the admirals so in October 1911 Churchill was selected for the post instead.58 Churchill's task was to update and extend Fisher's reforms plus bring the Navy into cooperation with the C.I.D. approved plans of the War Office.

Before beginning his reforms, Churchill had to find a First Sea Lord with whom he could successfully work. Admiral Wilson's antipathy to a Naval Staff and to using the B.E.F. on the continent, led to his removal in November 1911. His successor, Admiral Sir Francis Bridgeman, was ousted a year later because of his incompatability with Churchill, in favor of Prince Louis of Battenberg. Battenberg's pliability and general support of reform allowed Churchill a free hand in reshaping the Navy for war.59

Effective as of 1 May 1912 a new command, the Home Fleets, was created and given to Admiral Sir George Callaghan. It consisted of the First Fleet (fully manned, the most modern ships), the Second Fleet (50 percent nucleus-crewed ships), and the Third Fleet (care and maintenance parties
on the oldest ships). The Navy was redistributed so that the new Home Fleets incorporated the old Home Fleet and Atlantic Fleet plus all the new dreadnoughts as they were completed. In its final form, the First Fleet was to consist of four squadrons of eight ships each plus a fleet flagship. Including the eight nucleus-crewed ships of the Second Fleet, this would amount to 41 total British ships in 1913 to match an estimated 25 German ships. The new organization of the Navy gave Britain a sufficient home water superiority, on watch constantly, to ensure victory against any surprise attack by Germany.

Churchill, like Fisher before him, instituted a number of personnel reforms. He eliminated certain humiliating punishments and curtailed the powers of the ships' police, brought about a more generous leave system, gave officers and men a slight pay increase, and emphasized promotion by merit. Over several senior officers, Churchill made Rear Admiral David Beatty his Naval Secretary and promoted Vice-Admiral John Jellicoe, twenty-first on the list of twenty-two vice-admirals, to the Second-in-Command of the Home Fleets, a post virtually assuring him the command after Callaghan. Through these moves, Churchill brought able men, men whose careers had been built in the dreadnoughts, to the places of power.

Again, like Fisher, Churchill had a deep interest in improving matériel. He installed 15-inch guns, throwing
1,920 pound projectiles, in the five ships of the 1912-13 program. Fisher had already innovated a 13.5-inch gun in the six ships of 1909-10. In addition to heavier armament, Churchill made the 1912 ships into a "fast squadron" by the installation of oil rather than coal fueled engines. Oil reserves were ensured by the Government's purchase of a controlling share in the Anglo-Persian Oil Company. The quantity of the reserves to be kept in Britain was to be a 4½ month supply for reasons of economy though the Fisher Royal Commission, investigating the matter, had recommended a four year supply. During 1917 reserves were to fall dangerously low, a three week's supply overall with some bases only having six days worth of oil. The change to oil was thus a dangerous move because of Britain's dependence on imports, but the oil-fueled ships were superior to coal-fueled ones, and oil, like Fisher's turbine engines, was the future trend. Likewise, Churchill's 15-inch guns were logical extensions of Fisher's 12-inchers as they strengthened the "all-big-gun" principle.

On the matter of the Naval Staff, Churchill differed from Fisher. Hankey had continually recommended and worked for the Staff, but Fisher and Admiral Wilson had both blocked it. When Churchill became First Lord, Esher passed on to him some of Hankey's arguments for the Staff. Haldane also advised the creation of such a staff. Having been convinced, Churchill announced the formation of a "Naval War
Staff" on 1 January 1912 which would have the responsibility of:

... sifting, developing, and applying the results of history and experiment, and of preserving them as a general stock of reasoned opinion available as an aid and as a guide for all who are called upon to determine, in peace or war, the naval policy of the country.

Even so, the Staff did not become fully operational until the end of 1917. Had the Staff been established under Fisher, it would have had more time to develop and gain experience. Then some of the war's confusion might have been prevented, such as the Dardanelles fiasco.

The Naval War Staff was organized under a Chief who reported directly to the First Sea Lord. It consisted of three divisions—Operations, Intelligence, and Mobilization. After the war began, a Trade Division was created from a section of the Operations Division. The Staff's function was to study the operational side of war rather than the technical or matériel sides. To train officers in staff duties the Royal Navy Staff College was established in 1912 at the Naval War College, Portsmouth. Though hailed by Esher as "the most pregnant reform which has been carried out at the Admiralty since the days of Lord St. Vincent," the Staff was only advisory and hence often ignored. Other problems, besides the lack of executive authority, were also apparent. The First Sea Lord should have been also the Chief-of-Staff and thus more closely involved with it, the Staff's duties should have been more clearly defined
so as to not conflict with those of the First Sea Lord, and a better quality of officer should have been attracted to the Staff. The absence of good officers was because of the general distrust of the Staff, which was present throughout the Fleet. Only after the war began was there more attention given to the Staff, but even then many of its recommendations were ignored. 65 The formation of a staff was a necessary move; its failure to accomplish more dramatic results was due both to its belated creation and to the faults in its structure, allowing the conservatism of high ranking officers to block its efforts.

As early as 1908 Fisher had held discussions with the French as to which operations and zones might be left to them in the Mediterranean during war if both nations were allies. Only Asquith, Grey, and McKenna in the Cabinet had knowledge of the talks at that time. 66 Discussions were resumed under Admiral Wilson which culminated in the formation of detailed war contingency plans calling for the concentration of the French Fleet in the Mediterranean while the British Navy took on the responsibility of defending the French Atlantic and Channel coast. 67 This being contingent upon the two nations entering a war as allies. In September 1911 the French offered to take full responsibility for the Mediterranean. Since this was accepted by Admiral Wilson, the French proceeded to concentrate twelve fully commissioned battleships and six armored cruisers
The importance of the Mediterranean to British commerce was unquestioned. According to a Cabinet report from the Board of Trade, a large percentage of her imported wheat, barley, oats, oil, and iron ore came either from it or through it. Despite this, the report concluded that if the Mediterranean were closed by a hostile fleet, there would only be a few weeks of inconvenience until new sources of imports and new routes of trade could be established. Churchill refuted arguments made by Esher for a strong British naval presence in the Mediterranean by pointing out that a victory in the vital sector of the North Sea would have far-reaching effects on the other theaters, but that the reverse could not occur. He added:

Dispersion of strength, frittering of money, empty parades of foolish little ships "displaying the flag" in unfrequented seas, are the certain features of a policy leading through extravagance to defeat.\(^70\)

In contrast, the C.I.D., discussing the Mediterranean situation on 4 July 1912, decided that a Royal Navy presence there would have an advantageous effect on the wavering nations of Italy and Turkey, so it recommended the stationing there of a fleet equal in strength to one of the Mediterranean powers, excluding France. This was determined to be three to four battlecruisers, four armored cruisers, and four pre-dreadnoughts based at Malta. Other ships were to be added as they and manpower became free.
Cabinet approval for the scheme came on 5 July.\textsuperscript{71}

Once the question of whether or not to keep British ships in the Mediterranean was settled, the problem of commitment or noncommitment to France had to be tackled. On 17 July Churchill warned the French naval attaché that naval arrangements had no effect on political decisions. A draft Anglo-French naval statement followed on 23 July, saying that any naval agreements were binding only if both nations found themselves to be allies in a war. All peacetime dispositions were declared to be independent actions not based on a prearranged plan.\textsuperscript{72} In spite of this formal declaration of noncommitment, the French Foreign Minister, Pierre-Paul Cambon, was able to ask Grey on 1 August 1914:

\begin{quote}
Are you going to let Cherbourg and Brest be bombarded? . . . when it is by your advice and with your consent, and to serve your interests as well as our own, that we have concentrated all our ships far away.\textsuperscript{73}
\end{quote}

Cambon was right; Britain had made a moral commitment to France even if it were not legally binding. Britain would have had to defend the northern coast of France, though she was not formally committed to do so, or suffer the contempt of world opinion.

Two main strategic considerations had to be analyzed by Britain before the war—invansion and blockade. Invasion had to be prevented by the Fleet as one of its reasons for existence. The blockade of German ports was seen as the only way to force a fight or to use superior seapower if
Germany kept its fleet in port. Yet to be determined was how to accomplish both objectives.

After viewing the German Army maneuvers of 1906, Churchill wrote, "I am very thankful there is a sea between that army and England." He therefore recommended to Fisher in 1908 that a regular army should be retained at home in order to repel an invasion of up to 150,000 men (this was thought to be the highest practical figure for an invasion). "Would it or would it not be worth while" to Germany he questioned "to sacrifice 60,000 men for the pleasure of burning London?" Again it must stressed that any invasion attempt had to be stopped by the Fleet as the British Army was too small for such a task, especially if the B.E.F. was sent to the continent. The C.I.D. concluded, after an exhaustive study of the question, that as long as British seapower remained supreme, there was no danger of invasion. It said, nonetheless, that an army should be on guard to repel any raids of under 70,000 men that might elude the Fleet. It was the C.I.D.'s recommendation that a small regular force should be kept in addition to the mobilized Territorials to defend against this eventuality. Some admirals even favored Lord Robert's conscriptionist theories because they thought that a large home army would free the Fleet from having to watch the British coasts for an invasion fleet. General naval opinion, however, was confident that the Fleet alone would be able to prevent an
invasion. In this they agreed with St. Vincent's statement during a similar invasion scare of the nineteenth century: "I do not say they cannot come, my Lords. I only say they cannot come by sea." Naval confidence was high on this matter, and, as it happened, no invasion or raid to land troops was to be made during the war.

Actual Fleet exercises dealing with invasion were carried out in 1912 and 1913. In the July 1913 maneuvers the defences of the east coast were tested. Jellicoe, in command of the invasion fleet, was able to elude the defensive fleet and land 40,000 men. The exercises were cut short for fear of giving valuable information to Germany. Hankey took a calmer view of the exercises as he pointed out that of 107,000 men attempting to invade, 46,000 had been assessed as "drowned or captured" while 18,000 more men had been taken off by the invasion fleet after having landed. This left 43,000 men, which Hankey was confident that the home forces would be able to take care of. Finally in 1914, just before the war, the C.I.D. reiterated its 1907-08 conclusions that a small regular force plus the Territorials would be sufficient to defeat any invasion which might slip by the Fleet. The fear of invasion, nevertheless, affected many aspects of British military planning. The Fleet was tied to stopping one, regular forces had to be detached from the B.E.F. to meet one, and it increased the already high tension between
Britain and Germany.

Blockading Germany and preventing a like blockade of Britain were major concerns for the Royal Navy. While invasion could cause sudden defeat, a blockade could slowly starve Britain into submission. By the late nineteenth century, Britain was dependent on imports for two-thirds of her foodstuffs and much of her raw materials. There was never more than a six weeks' food supply in hand so that the effects of commerce raiding could also have grievous consequences on Britain within a relatively short time span. Enemy cruisers were the expected weapons of commerce raiding and although losses were expected to be heavy at first, the Chief Umpire of the 1906 maneuvers observed:

It is practically certain that the commencement of the third week of the war would have seen all commerce destroying ships either captured or blockaded in their defended ports.

This prediction was only partially accurate since it did not foresee the development of the submarine as a long range weapon. Only Fisher disagreed with the consensus that no civilized nation would use the submarine because it could not pick up the survivors of the ships it might sink. Churchill believed this right up to the beginning of the war. In contrast, Churchill was correct in his assessment of the importance of keeping Britain's commerce flowing. Order, he said, "depends almost exclusively upon the poorer people being able to purchase a certain minimum
amount of the staple foods, especially bread, at prices which they can afford."\(^{82}\) If Britain were to starve, her will to fight would soon collapse. This almost did occur in the spring of 1917 when Germany launched unlimited submarine warfare.

A blockade could also be an offensive weapon for Britain as an Admiralty statement in 1906 concluded, that "the British threat upon German trade is a tremendous one, both by reason of Britain's overwhelming preponderance at sea and of her geographical position"\(^{83}\) (see Map 1). When the Declaration of London in 1907 threatened to minimize the effects of blockade by contravening a belligerent nation's right to seize neutral shipping, Hankey was one of those who fought against British ratification. Eventually the House of Lords rejected it, but the Liberal Government claimed that it would abide by it anyway.\(^{84}\) By 1908 a Nelsonian "close blockade" had been made impractical by the development of mines and torpedoes, so it was decided that in future the blockading fleet would withdraw out of surprise torpedo range, at night. In 1912 an "observational blockade" (see map) was substituted, whereby cruisers and destroyers would patrol a line from Norway to Holland in order to give warning of a German fleet approaching Britain. Just before the war, this too was discarded in favor of a blockade of the entire North Sea to lessen attrition on the Royal Navy. This new strategy provided for the patrol of
Map 1. From Arthur J. Nander, From the Dreadnought to Scapa

BRITISH & GERMAN NORTH SEA BASES — 1914

Ship Canals
International Frontiers

0 40 80 120 MILES
the Straits of Dover and of the northern exit between Scotland and Norway. The Grand Fleet (the renamed Home Fleets) was to wait in port for the patrolling cruisers to intercept the High Sea Fleet, and periodically make sweeps of its own in an attempt to catch the German Fleet out of its ports. The new strategy allowed the Germans out of their ports but confined them to the North Sea. It also economized on the losses which would have been suffered from German raids on a "close" or "observational blockade."

Essential to the success of this "long blockade" was a base on the east coast. Among the contenders were (see map) Rosyth, Cromarty, and Scapa Flow. Rosyth was eliminated because if the Forth Bridge was demolished, it would have blocked the Fleet off from the sea. Cromarty and Scapa Flow were at equal distances from the German bases and far enough away from them in stormy waters to lessen the dangers of a surprise raid by destroyers or submarines. After much discussion, Cromarty was chosen as the Fleet's base over Scapa Flow because of the latter's inaccessibility by land from Britain and the impossibility of defending the east coast from that distance. Scapa Flow was thus left as an undefended anchorage. When the Admiralty requested funds to install defences, it was turned down by the C.I.D. On

the east coast only Chatham, far to the south, was a first class port at the opening of the war. Surprisingly, when war began, Churchill sent the Fleet to Scapa Flow. British difficulties in selecting a base were partially due to the evolutionary state of blockade. Yet the failure to have a proper base at the outset of the war was an inexcusable oversight and was to result in having the Fleet sent in 1914 to the totally undefended anchorage at Scapa Flow.

Tactical thought was infrequently studied by prewar British naval officers. The same "line of battle" employed before Nelson's time, and violated by him, still held sway. Fleets were expected to cruise in columns then rapidly deploy in a long line for battle. It was true that "line ahead" (same as "line of battle") was the only way of deploying a fleet without some ships having their guns masked by friendly vessels, but it stressed a doctrine which was too rigid and centralized in the flagship. Initiative was thus taken away from local commanders who might have better knowledge of the situation, because they were used to waiting for orders from the flagship. Another deficiency was the lack of British night fighting practice. German ships practiced this almost half the time, in contrast. Hence they were ready for the night fighting at Jutland while the British were not.

Combined operations also received little naval study.
This was because of Fisher's opposition to the War Office's continental strategy. He preferred quoting Grey's statement that "The British Army is a projectile to be fired by the Navy." Fisher wanted the B.E.F. landed on the Baltic coast thirty miles from Berlin where it could draw off German reserves and disrupt Germany's entire war effort. Admiral Wilson continued Fisher's arguments, but the appointment of Churchill to the Admiralty soon ended these naval schemes and brought the Navy in line with War Office thinking. Only after the war had started would Churchill himself revive some of these schemes.

When war was declared, the British Navy had the backing of a great naval tradition, but it also had severe deficiencies. The gunnery expert Percy Scott exclaimed:

... we had no up-to-date mine layers, nor an efficient mine; no properly fitted mine sweepers; no arrangements for guarding our ships against mines; no efficient method of using our guns at night; no anti-Zeppelin guns; no anti-submarine precautions; no safe harbour for our Fleet, and only a few ships (eight) were partly fitted with a proper method of firing their guns. Our torpedoes were so badly fitted that in the early days of the war they went under the German ships instead of hitting them.

In many areas of construction the German ships were equal or superior to their British counterparts. British ships had larger calibre guns with a heavier broadside than the Germans. British fire tended to be more accurate during most of a battle due to Scott's invention of the gun director system. Under this system one man aimed and fired...
all the guns of a ship electronically at the same moment. In tests between identical ships, director firing scored six times as many hits as a ship without it. It was not until Jutland, though, that most British ships had the system installed. British shells, though larger, had poorer penetration qualities than German shells. Often they would just bounce off when hitting at an oblique angle or they would detonate before penetrating, thus making a large hole in the ship's armor rather than exploding in her interior.90

On paper, British ships were faster than their German equivalents, but in operation there appeared little difference. At Dogger Bank three German battle-cruisers managed to elude five British battle-cruisers. Likewise the Goeben, in a headlong race, was able to stay ahead of British battle-cruisers in 1914. One reason German ships were able to keep up with the British, despite the broader beam in the German vessels, was their adoption of a more efficient small tube boiler in 1907 while the Royal Navy did not get these until 1915-16.91 German ships were also more heavily armored and had the armor distributed better. Coal bunkers were placed in the most vulnerable areas to cushion shell impact, and steps were taken to prevent shell-flash from entering the magazines. The British did not discover shell-flash until after they had lost three battle-cruisers to it at Jutland. Better compartmentalization and superb pumping and counter-flooding systems made German ships almost unsinkable.
Compared with the British battleship Audacious (1910 construction) which was sunk with one mine, the 1909 Goeben survived five such hits. German quality was not surpassed by the British until the construction of the "Queen Elizabeth" class of dreadnoughts. Superior German construction was made possible by the fact that German vessels, designed to fight for a few days at a time, could sacrifice crew comfort for fighting efficiency. The Royal Navy on the other hand was a world navy and so had to have ships capable of making long voyages.

Counter measures against submarines and torpedoes were totally experimental in 1914. Neither was there any sure way of locating submarines once they had submerged. One defensive measure devised called for the Fleet to always cruise at high speeds while keeping a zigzagging course. At the same time destroyers would be screening the capital ships. In this way submarines would get only one shot at best at a very fast moving target with destroyers ready to interfere at every point. By 1912 the destroyer had evolved from a torpedo attack vessel into a defensive measure against submarines and destroyers themselves, with the exchange of more and larger guns for less torpedoes. The Ramillies in 1913 became the first dreadnought, and the last until after the war, to be fitted with a bulge below the waterline to take the impact of a torpedo and prevent a penetration of the hull. When the Naval War Staff in
warned that Germany might use her submarines for commerce raiding, Churchill was impressed, but the Board did not take the suggestion seriously. Scott's view that the submarine had made the battleship obsolete was violently attacked by naval conservatives. But, at the same time in Germany, Tirpitz was also underestimating the value of the submarine as a military weapon. 95

Torpedoes were also carried by destroyers, which at the beginning of the war were considered more dangerous than submarines. Results of torpedo attacks in the Russo-Japanese War had been poor, however. The Japanese scored only 17 hits out of 370 torpedoes fired in battle. But, since that time, the torpedo's range had increased from 4–4,500 yards (1905) to 11,000 yards (1914) with an overall increase in speed from 19 knots set for 4,000 yards to 45 knots set for 7,000 yards. Their diameters increased from 14 inches in 1905 to 21 inches by the outbreak of the war. Admiral Sir William May, Commander-in-Chief, Home Fleet, warned in 1910:

in misty weather an attack by destroyers in a fleet action is not only possible, but unless recognized and means are taken to defeat it, such an attack would probably succeed. 96

Mines had been proven very successful in the Russo-Japanese War as they had sunk fourteen ships, including three battleships. Yet there was little interest in them among the British naval experts. Hence, in 1914 the Royal Navy had no policy for the use of mines and was technically far
behind Germany and Russia in their development.  

Advances in aerial technology led Asquith to appoint a C.I.D. subcommittee under Esher in 1908 to investigate military uses of it. The Air Sub-Committee recommended in 1910 the construction of a rigid airship and the formation of an aviators corps. In April 1912 the Royal Flying Corps, with Naval and Military Wings, was created. The Navy's inexperience and the lack of qualified engineers made British efforts at developing airships fail while Germany kept and expanded its lead in this weapon. Planes and seaplanes received much more attention and enthusiasm at the Admiralty, especially by Churchill who took to the air himself. Fisher predicted in 1913 that "aviation will surely supplant cruisers" as the scouts of the Fleet. Little thought was given to planes attacking ships though: there were some advocates of this tactic. British aerial progress was still in its formative stages at the beginning of the war, but its possibilities were recognized by those in power.

In 1914 the Fleet was ready to go to war. Its strategy was no longer at cross purposes to that of the War Office and it had formulated its plans for a blockade against Germany if she did not come out and fight. Britain had a clear edge in numbers even if Germany had a qualitative superiority. Perhaps the one extra British advantage was her naval tradition which gave her men the courage to want to try battle with Germany. After all, it was Germany which
was blockaded in the North Sea, not Britain. The German Fleet which had everything to gain from a battle against the British and nothing to lose (assuming the fleet itself was expendable for some greater purpose such as an invasion of England) contented itself with small raids until even these grew rare.
CONCLUSION

When war was declared in 1914, Britain was far better prepared to take part in it than she would have been in 1898. The British failures in the Boer War proved to be a stimulus for reform throughout Britain's military structure. The Committee of Imperial Defence was formed, the Haldane reforms were executed at the War Office, and at the Admiralty Fisher and Churchill reshaped it for war. By the outbreak of war, most of the reforms had been accomplished, and though not perfectly prepared for war (Is any nation?), Britain did have the military organization to fight a war in her interests and in her way.

The creation of the C.I.D. was a vital step in the process of reforming the British military for it coordinated the efforts of the service departments with each other and with the wishes of the Government. During the Continental versus Blue Water debate it was able to mediate and then make the recommendation, which was accepted, to accept the former school's plans. The C.I.D. also represented almost a standing committee on reform since its investigations and studies often led to changes in military procedure. Its work on aerial weapons was an example of this. Yet perhaps the C.I.D.'s greatest contribution lay in its broad
approach to defence questions. Because it was not confined to army or naval considerations, it was able to examine all aspects, even civilian oriented, of a problem and then present a recommendation not colored by departmental interests.

The Army undoubtedly profited most from the Boer War because of its direct involvement and failure. It consequently adopted a General-Staff, modernized its tactics and strategy, and, above all, was reorganized by Haldane into a flexible striking force backed by an expandable system of reserves both as a home defence force and as a source of reinforcement. The General-Staff coordinated the various sections of the Army in much the same way as the C.I.D. did for total defence. In addition it made careful studies of possible future army operations and drew up detailed plans for every eventuality. The specific goals of the plans might be criticized, but their thoroughness was extraordinary. This was why the B.E.F. was moved so quickly and efficiently to the battlefront in 1914.

Naval reform, though not as dramatic as Haldane's reforms, was nevertheless necessary and effective. Fisher's personnel reforms upgraded the quality of officers and men. His innovation of the Dreadnought brought about a revolution in naval warfare. Churchill then extended the Fisher reforms to include the Naval War Staff and an acceptance of the Army's Continental strategy. In 1914 the British Navy was
larger than the German Fleet and far more confident of success. Any quality differences were made up by the construction of the "Queen Elizabeths." The Royal Navy, in short, was aggressive and ready for war. The one major flaw, the lateness in the creation of the Staff, held it back from being completely prepared, but in the short time Churchill had to work, the Navy did begin to take a serious look at the study of naval warfare which was to culminate in the fully operational Staff in 1917.

Britain's island status and small Army made the Navy her main military arm. The Navy was expected to defend against invasion, plus transport the Army, defend British commerce, and take the offensive to the enemy. She was to succeed in all these areas though the last two were accomplished only with difficulty. German use of the submarine as a commerce raider was an unexpected development, except to some like Fisher and Scott, so there were no means with which to meet it. Only after near disaster would the convoy system be revived to defeat the submarine. Had there been a proper staff in existence long before the war, this solution might have been found sooner. Blockade was the Royal Navy's answer to an enemy who would not fight. This proved to be a very effective weapon against Germany as Britain used her seapower to cut off imports and exports and thus slowly choke Germany.

While the blockade was a contributory factor in bringing
about Germany's defeat, it was Britain's Army committed to Continental principles which was to take Germany on as a land power and hold on even after the French Army was defeated as an offensive instrument. This transformation of Britain from a naval power to a land power possessing a strong navy was the result of the Continentalist victory before the war. Had not this change in policy been made, it is doubtful whether the British Navy could have had much effect against German land power even if the German Fleet was sunk.

Though Britain had the instruments with which to fight a war, her conception of what a future war would be like was colored by the Franco-Prussian War of 1870. Britain like every other European nation expected a short decisive war in which speed would mean everything at the beginning. In this belief British leaders were joined by the major body of expert opinion. A few men like Kitchener guessed right but they were not heard over those calling for decisive campaigns. With this conception of what the war would be like in mind, Britain was prepared to fight it in her way. The Royal Navy would be her main weapon while the Army would be used to intervene on the continent. Both services stood up to their duties well. Had such a war come in 1899 instead of a small colonial affair in South Africa, Britain would have suffered disaster far surpassing that of the Boer War. Disaster from which it might not have
recovered. Such was the difference between 1899 and 1914 because of the twelve years of intervening reform.
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