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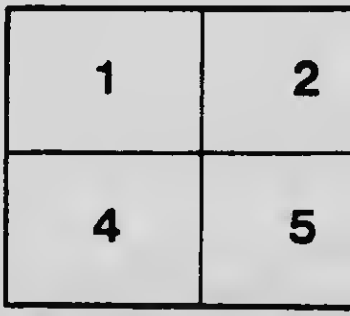

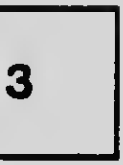

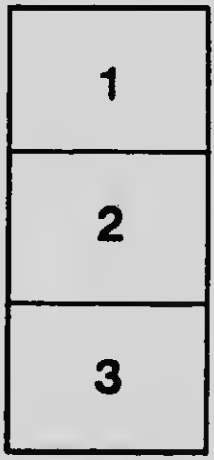

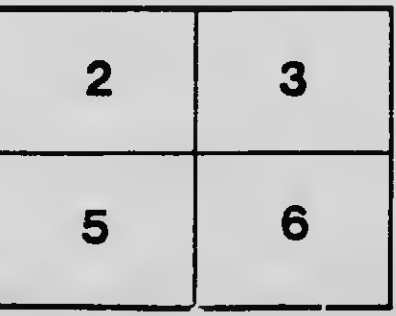

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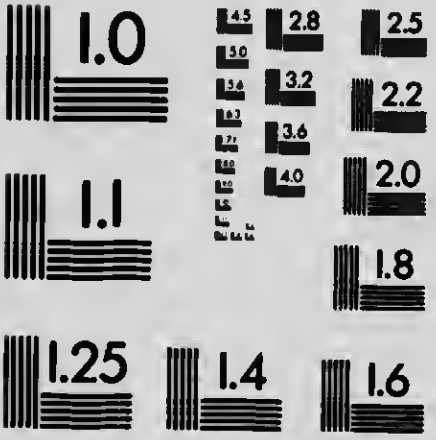

The Daily Telegraph
WAR BOOKS

THE FLEETS AT WAR

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Photo: Speight, Ltd.

ADMIRAL SIR JOHN JELLICOE.

Supreme Admiral, British Home Fleet.

686

THE FLEETS AT WAR

BY

ARCHIBALD HURD

Author of "Command of the Sea," "Naval Efficiency," "German Sea Power: Its Rise, Progress, and Economic Basis" (part author), etc.

HODDER AND STOUGHTON

LONDON NEW YORK TORONTO

MCMXIV

PREFACE

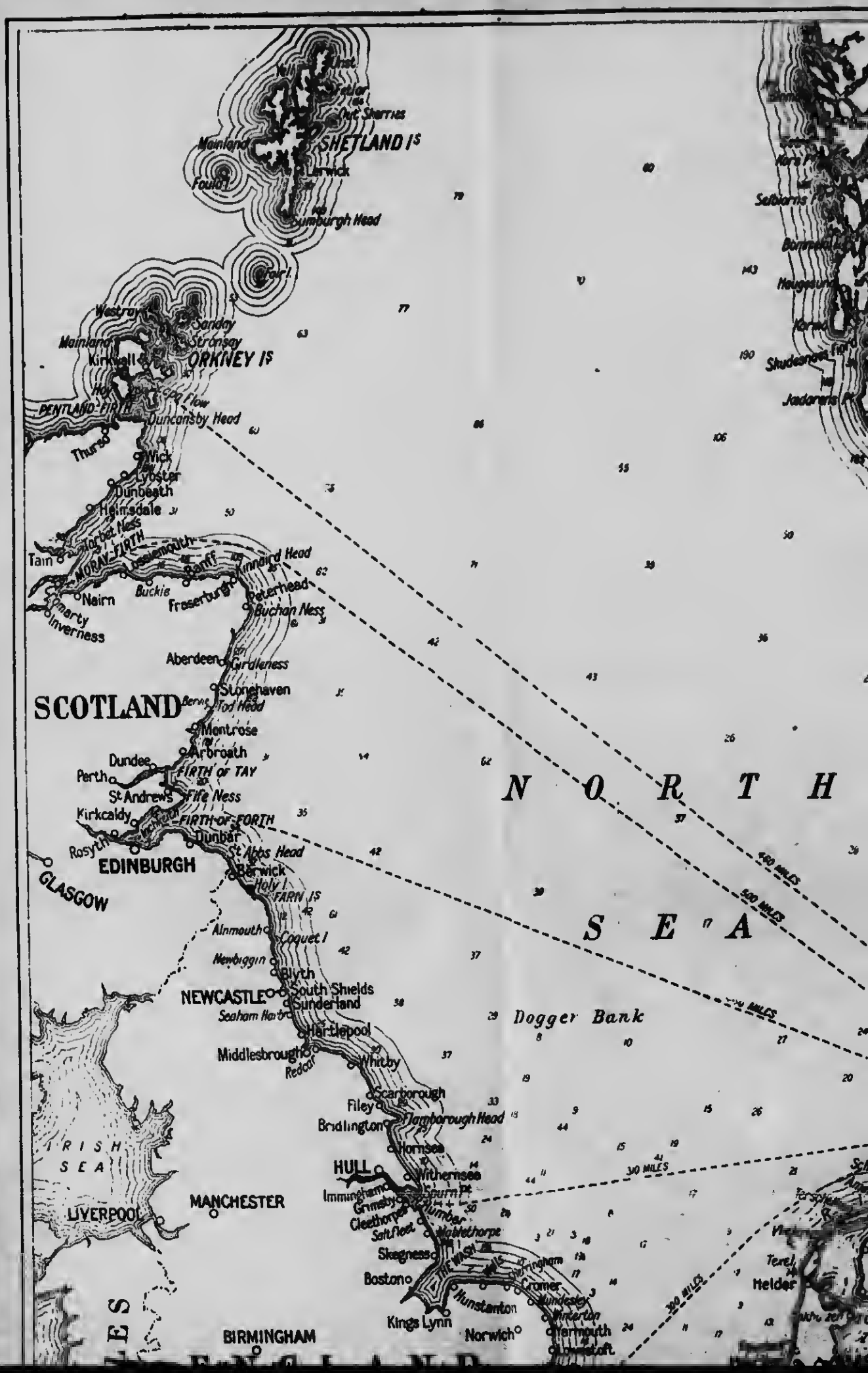
It is hoped that this volume will prove of permanent value as presenting a conspectus of the great navies engaged in war when hostilities opened, and in particular of the events of singular significance in the naval contest between Great Britain and Germany which occurred in the years immediately preceding the war.

Grateful acknowledgment is made to Mr. H. C. Bywater for valuable assistance in preparing this volume.

A. H.

CONTENTS


GERMANY
BREMEN
HAMBURG
KIEL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Mainland
Lerwick
Fair I.
Westray
Sanday
Stronsay
Mainland
Kirkwall
ORKNEY IS
Hoy
Scapa Flow
PENTLAND FIRTH
Duncansby Head
Thurso
Wick
Lybster
Dunbeath
Helmsdale
Tarbet Ness
MORAY FIRTH
Tain
Lossiemouth
Banff
Kinnaird Head
Nairn
Buckie
Fraserburgh
Peterhead
Cromarty
Inverness
Buchan Ness
Aberdeen
Girdleness
Stonehaven
SCOTLAND
Montrose
Arbroath
Dundee
Perth
FIRTH OF TAY
St Andrews
Fife Ness
Kirkcaldy
FIRTH OF FORTH
Dunbar
Rosyth
EDINBURGH
St Abbs Head
Berwick
GLASGOW
Holy I.
FARNE IS
Alnmouth
Coquet I.
Newbiggin
Blyth
NEWCASTLE
South Shields
Sunderland
Seaham Harbr
Hartlepool
Middlesbrough
Redcar
Whitby
Scarborough
Filey
Bridlington
Flamborough Head
Hornsea
HULL
Withernsea
Immingham
Spurn Pt
Grimsby
Humber
Cleethorpes
Saltfleet
Mablethorpe
Skegness
Wainfleet
Wells
Bostono
Cromer
Hunstanton
Kings Lynn
Norwich
Yarmouth
Lowestoft
BIRMINGHAM
MANCHESTER
LIVERPOOL
IRISH SEA
Dogger Bank
NORTH SEA
400 MILES
500 MILES
300 MILES
Helder
Texel


NORWAY
CHRISTIANIA
Drammen
Moss
Tonsberg
Frederikstad
Fredrikshald
Porsgrund
Krogero
Strömstad
SWEDEN
Bergen
Jaedarens Pt
Obrestad
Egersund
Christiansand
Lister
Arendal
Grimstad
Tvedestrand
Tromo
Gothenburg
Orust
Tjörn
Ostmal
Marstrand
The Skaw
Göteborg
Kungsbacka
Hagebund
Varberg
Falkenberg
Halmstad
Ringkjöbing
Esbjerg
Fanö
Ribe
Hadersley
Apenrade
Hoyer
Flensburg
Amrum
Husum
Eckernförde
Tönning
Nordstrand
Basum
HELIGOLAND
Brunsbüttel
Gluckstadt
Cuxhaven
Norden
Wilhelmshaven
Bremerhaven
Emden
Delfzil
Harlingen
Stavoren
Kampen
BREMEN
HAMBURG
KIEL
Neustadt
KIEL BAY
KAISER WILHELM CANAL
Dassau
Wismar
Rostok
Ribnitz
Stralsund
Fehmarn
Laaland
Falster
Lesser
Nyborg
FUNEN
Korsor
Kioge
ZEALAND
COPENHAGEN
Malmö
Trelleborg
Helsingborg
Landskrona
Helsingor
Kalundborg
Samsö
Aarhus
Randers
Hobro
Aalborg
Thisted
Lökken
Skagen
Frederikshavn
Saby
Ålborg
Hirtshalm
Hjörring
Thyboron
Bovbjerg
Esbjerg
Sondering
Nymindegab
Blaavand Pt
Fredericia
Kolding
Hadersley
Apenrade
Flensburg
Husum
Eckernförde
Tönning
Basum
Brunsbüttel
Gluckstadt
Cuxhaven
Bremerhaven
Wilhelmshaven
Emden
Norden
Harlingen
Stavoren
Kampen
SKAGERRACK
KATTEGAT
JUTLAND
DENMARK
The Sound
The Belts
Helsingor
Landskrona
Malmö
Trelleborg
Stevns
Rostock
Ribnitz
Stralsund
Wismar
Dassau
Fehmarn
Lesser
Falster
Laaland
Korsor
Kioge
Nyborg
FUNEN
Esbjerg
Fanö
Ribe
Hadersley
Apenrade
Hoyer
Flensburg
Amrum
Husum
Eckernförde
Tönning
Nordstrand
Basum
HELIGOLAND
Brunsbüttel
Gluckstadt
Cuxhaven
Norden
Wilhelmshaven
Bremerhaven
Emden
Delfzil
Harlingen
Stavoren
Kampen
BREMEN
HAMBURG
KIEL
Neustadt
KIEL BAY
KAISER WILHELM CANAL
GERMANY


SCOTLAND
NORTH SEA
Montrose
Arbroath
Perth
FIRTH of TAY
St Andrews
Fife Ness
Kirkcaldy
FIRTH OF FORTH
Dunbar
EDINBURGH
GLASGOW
Holy I.
FARN IS
Alnmouth
Coquet I
Newbiggin
NEWCASTLE
South Shields
Sunderland
Seaham
Hartlepool
Middlesbrough
Whitby
Dogger Bank
Filey
Bridlington
Flamborough Head
Withernsea
HULL
Immingham
Grimsby
Spurn Pt
Humber
Saltfleet
Skegness
Boston
Wash
Wells
Sheringham
Cromer
Hunstanton
Kings Lynn
Norwich
Lowestoft
Southwold
Aldeburgh
Orfordness
Ipswich
Felixstowe
Harwich
Maldon
Clacton
Southend
Shoeburyness
LONDON
THAMES
Chatham
Margate
Ramsgate
Deal
Dover
Folkestone
Sheerness
Hastings
Newhaven
Brighton
Worthing
Southampton
Bournemouth
PORTSMOUth
ISLE OF WIGHT
Cathernes Pt
Portland Bill
Plymouth
Start Pt
ENGLISH CHANNEL
Alderney
Cherbourg
C. Barfleur
CHANNEL IS
(British)
Guernsey
Sark
Jersey
Dieppe
Fécamp
Le Tréport
Abbeville
R. Somme
Etaples
Boulogne
Calais
Gris Nez
Dunkerque
Gravelines
Nieuport
Ostend
Bruges
Flushing
Walcheren
Schouwen
Goeree
Hook of Holland
THE HAGUE
ROTTERDAM
Haarlem
IJmuiden
Texel
Helder
Vlieland
Terschelling
Schiermonnikoog
Norderney
Borkum
HOLLAND
ANTWERP
BELGIUM
BRUSSELS
LIÈGE
Namur
LILLE
FRANCE
HAVRE
R. SEINE
IRISH SEA
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BIRMINGHAM
WALES
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BRISTOL CHANNEL
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JUTLAND
DENMARK
KATTEGAT
Falkenberg
Halmstad
Horsens
Fredericia
Esbjerg
Ribe
Haderslev
Apenrade
Flensburg
Amrum
Husum
Kappeln
Nyborg
FUNEN
ZEALAND
COPENHAGEN
Helsingor
Landskrona
Malmo
Kioge
Korsor
KIEL BAY
Falster
KIEL
Neustadt
Rostock
Wismar
Dassau
HELIGOLAND
ELBE
Cuxhaven
Gluckstadt
HAMBURG
Bremerhaven
Wilhelmshaven
Norden
Emden
Delfzijl
BREMEN
Schiermonnikoog
Ameland
Terschelling
Harlingen
Stavoren
Enkhuizen
ZUIDER ZEE
Kampen
AMSTERDAM
Scheveningen
HOLLAND
ROTTERDAM
Maas
ANTWERP
IUM
LIÈGE
Namur
COLOGNE
AIX LA CHAPELLE
GERMANY
NORWAY
SWEDEN
FINLAND
CHRISTIANIA
Drammen
Frederikstad
Skagerrak
GÖTEBORG
Halmstad
Kalmar
COPENHAGEN
Karlskrona
BORNHOLM
Hernosand
Sundsvall
Hudiksvall
Gefle
Upsala
STOCKHOLM
Nyköping
Norrköping
Gulf of Bothnia
ALAND
HELSINGFORS
Viborg
KRONSTADT
ST PETERSBURG
Gulf of Finland
Reval
Pernau
Fellin
Gulf of Riga
RIGA
Mitava
GOTLAND
BALTIC SEA
Libau
Memel
Tilsit
Kovno
VILNA
Grodno
KONIGSBERG
DANZIG
Stolp
Swinemunde
STETTIN
Rostock
Lubeck
KIEL
HAMBURG
BREMEN
BERLIN
Posen
WARSAW
GERMANY
RUSSIA
INSET MAP OF THE BALTIC SEA

INTRODUCTION

THE OPENING PHASE

Peaceful Victories of British Sea Power

The declaration of war against Germany, followed as it was by similar action against Austria-Hungary, was preceded by a sequence of events so remarkable in their character that if any British writer had made any such forecast in times of peace he would have been written down as a romantic optimist.

Owing to a series of fortunate circumstances, the British Fleet—our main line of defence and offence—was fully mobilised for war on the morning before the day—August 4th at 11 p.m. —when war was declared by this country, and we were enabled to enter upon the supreme contest in our history with a sense of confidence which was communicated to all the peoples of the British Empire. This feeling of confidence and courage furnished the best possible augury for the future.

Within a fortnight of diplomatic relations being broken off with Germany, and less than a

week after Austria-Hungary by her acts had declared her community of interest with her ally, the British Navy, without firing a gun or sending a single torpedo hissing through the water, had achieved four victories.

(1) Germany's elaborate scheme to produce a feeling of panic in this country—hence the army of spies, who took advantage of our open hospitality, using the telephone and providing themselves with bombs and arms, had failed.

(2) Germany's over-sea commerce was strangled.

(3) British trade on the seas began to resume its normal course owing to the growing confidence of shipowners and shippers.

(4) The British Expeditionary Force, as detailed for foreign service, had been transported to the Continent under a guarantee of safety given by the British Fleet.

These successes were due to the influence of sea-power. Confidence in the Navy, its ships and men, and a belief in the competency of Mr. Winston Churchill and Prince Louis of Battenberg and the other Sea Lords, and the War Staff, steadied the nerve of the nation when it received the first shock. Apparently the crisis developed so swiftly that there was no time for effective co-operation between the German spies. All the mischievous stories of British reverses which were

clumsily put in circulation in the early period of hostilities were tracked down; for once truth was nearly as swift as rumour, though the latter was the result of an elaborately organised scheme for throwing the British people off their mental balance. It was conjectured that if a feeling of panic could be created in this country, a frightened nation would bring pressure to bear on the naval and military authorities and our strategic plans ashore and afloat would be interfered with. A democracy in a state of panic cannot make war. The carefully-laid scheme miscarried. Never was a nation more self-possessed. It had faith in its Fleet.

In the history of sea power, there is nothing comparable with the strangulation of German oversea shipping in all the seas of the world. It followed almost instantly on the declaration of war. There were over 2,000 German steamers, of nearly 5,000,000 tons gross, afloat when hostilities opened. The German sailing ships—mostly of small size—numbered 2,700. These vessels were distributed over the seas far and wide. Some—scores of them, in fact—were captured, others ran for neutral ports, the sailings of others were cancelled, and the heart of the German mercantile navy suddenly stopped beating. What must have been the feelings of Herr Ballin and the other pioneers as they contemplated the ruin, at least temporary ruin, of years of splendid enterprise? The strategical advantages enjoyed by England in a war against Germany, lying as she does like a bunker across Germany's approach to the oversea world, had never been

understood by the mass of Germans, nor by their statesmen. Shipowners had some conception of what would happen, but even they did not anticipate that in less than a week the great engine of commercial activity oversea would be brought to a standstill.

By its prompt action on the eve of war in instituting a system of Government insurance of war risks, Mr. Asquith's administration checked any indication of panic among those responsible for our sea affairs. The maintenance of our oversea commerce on the outbreak of hostilities had been the subject of enquiry by a sub-committee of the Committee of Imperial Defence. When war was inevitable, the Government produced this report, and relying on our sea power, immediately carried into effect the far-reaching and statesmanlike recommendations which had been made, for the State itself bearing 80 per cent. of the cost of insurance of hull and cargoes due to capture by the enemies. Thus at the moment of severest strain—the outbreak of war—traders recognised that in carrying on their normal trading operations overseas they had behind them the wholehearted support of the British Government, the power of a supreme fleet, and the guarantee of all the accumulated wealth of the richest country in the world. None of the dismal forebodings which had been indulged in during peace were realised. Traders were convinced by the drastic action of the Government and by the ubiquitous pressure of British sea power on all the trade routes that, though some losses might be suffered owing to the action of

German cruisers and converted merchantmen, the danger was of so restricted a character and had been so admirably covered by the Government's insurance scheme that they could "carry on" in calm courage and thus contribute to the success of British arms. Navies and armies must accept defeat if they have not behind them a civil population freed from fear of starvation.

Even more remarkable, perhaps, than either of these victories of British sea power was the safe transportation to the Continent of the Expeditionary Force as detailed for foreign service. Within a fortnight of the declaration of war, while we had suffered from no threat of invasion or even of such raids on the coast as had been considered probable incidents in the early stage of war, the spearhead of the British Army had been thrust into the Continent of Europe.

It is often the obvious which passes without recognition. The official intelligence that the Expeditionary Force had reached the Continent fired the imagination of Englishmen, and they felt no little pride that at so early a stage in the war the British Army—the only long-service army in the world—should have been able to take its stand beside the devoted defenders of France and Belgium.

It is, of course, obvious that the army of an island kingdom cannot leave its base except it receive a guarantee of safe transport from the Navy. The British Army, whether it fights in India, in Egypt, or in South Africa, must always be carried on the back of the British Navy

If during the years of peaceful dalliance and fearful anticipation it had been suggested that, in face of an unconquered German fleet, we could throw an immense body of men on the Continent, and complete the operation within ten days or so from the declaration of war, the statement would have been regarded as a gross exaggeration. This was the amazing achievement. It reflected credit on the military machinery; but let it not be forgotten that all the labours of the General Staff at the War Office would have been of no avail unless, on the day before the declaration of war, the whole mobilised Navy had been able to take the sea in defence of British interests afloat.

We do well not to ignore these obvious facts, because they are fundamental. The Navy must always be the lifeline of the Expeditionary Force, ensuring to it reinforcements, stores, and everything necessary to enable it to carry out its high purpose. That the Admiralty, with the approval of Admiral Sir John Jellicoe, felt itself justified in giving the military authorities a certificate of safe transport before the command of the sea had been secured indicated high confidence that when the German fleet did come forth to accept battle the issue would be in no doubt, though victory might have to be purchased at a high price.

Nor was this all. Thanks to the ubiquitous operations of the British Navy, the Government was able to move two divisions of troops from India, and to accept all the offers of military aid which were immediately made by the Dominions;

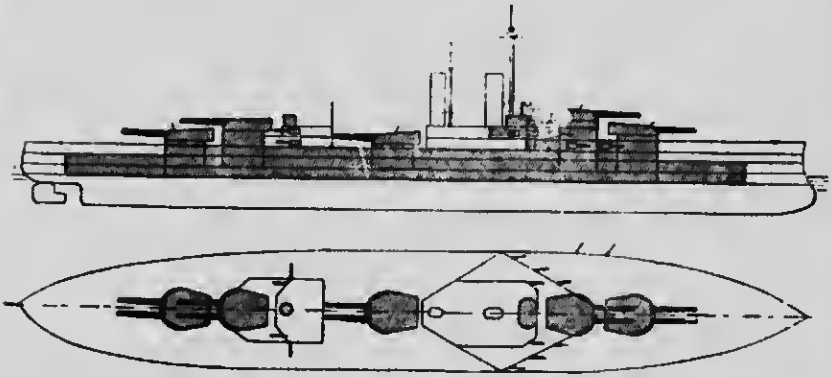
H.M.S. King George V. *Photo: Cribb, Southsea.*

KING GEORGE V CLASS.

KING GEORGE V, CENTURION, AUDACIOUS, AJAX.

Displacement: 23,000 tons.

Speed: 22 knots; Guns: 10 13.5in., 16 4in.; Torpedo tubes: 5.



Astern fire:	Broadside:	Ahead fire:
4 13.5in.	10 13.5in.	4 13.5in.

It was realised in a flash by all the scattered people of the Empire that the Fleet, with its tentacles in every sea, maintains the Empire in unity: when "the earth was full of anger," the seas were full of British ships of war.

It was in these circumstances that the war opened. Every incident tended to remind the people of the British Isles and the subjects of the King who live in the far-flung Dominions and those who reside in the scattered Crown Colonies and Dependencies of the essential truth contained in the phrases which had come so trippingly to the lips in days of peace. Men recognised that the statement of our dependence upon the sea as set forth in the Articles of War was a declaration of policy which we had done well not to ignore:

> "It is upon the Navy that, under the good Providence of God, the wealth, prosperity and peace of these islands and of the Empire do mainly depend."

How true these words rang when, in defence of our honour, we had to take up the gage thrown down by the Power which claimed supremacy as a military Power and aspired to primacy as a naval Power. Those who turned to Mr. Arnold White's admirable monograph on "The Navy and Its Story," must admit that this writer, in picturesque phrase, had set forth fundamental facts:

> "Since the first mariner risked his life in a canoe and travelled coastwise for his

pleasure or his business, Britain has acquired half the seaborne traffic of the world. She relies on her Navy to fill the grocer's shop, to bring flour and corn to our great cities and to keep any possible enemy at a distance. So successfully has the British Navy done its work that many generations of Englishmen have grown up without hearing the sound of a gun fired in anger. Every other nation in Europe has heard the tramp of foreign soldiery in the lifetime of men still living and felt the pain and shame of invasion.

"Five times in the history of England the British Navy has stood between the would-be master of Europe and the attainment of his ambition. Charlemagne, Charles V., Philip II. of Spain, Louis XIV. of France, and Napoleon—all aspired to universal dominion. Each of these Sovereigns in turn was checked in his soaring plans by British sea power."

When the British peoples awoke to the fact that they owed it to themselves and their past to join in humbling another tyrant, they gained confidence in the task which confronted them from the glorious record of the past achievements of those who, relying upon command of the sea, had crushed in the dust the mightiest rulers that had ever tried to impose their yoke on humanity.

In a spirit of calmness, patience and courage the British people took up the task which their

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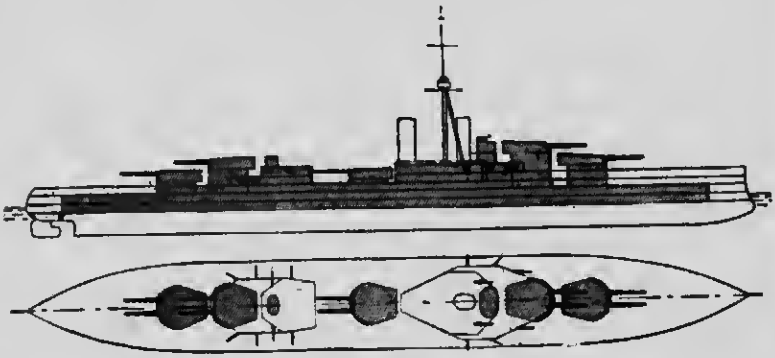
H.M.S. Orion. *Photo: Sport & General.*

ORION CLASS.

ORION, CONQUEROR, MONARCH.
THUNDERER.

Displacement: 22,500 tons.

Speed: 22 knots; Guns: 10 13.5in., 16 4in.;
Torpedo tubes: 3.



Astern fire:	Broadside:	Ahead fire:
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sense of honour forced upon them all unwillingly. Glancing back over the record of naval progress during the earlier years of the twentieth century we cannot fail to recognise that, in spite of many cross currents and eddies of public opinion, fate had been preparing the British peoples, all unconsciously, for the arbitrament of a war on the issue of which would depend all the interests, tangible and intangible, of the four hundred and forty million subjects of the King—their freedom, their rights to self government, their world-wide trade, and that atmosphere which distinguishes the British Empire from every other empire which has ever existed. In the years of peace men had often asked themselves whether a new crisis would produce the men of destiny to defend the traditions we had inherited from our forefathers. While peace still reigned, they little realised that the men of destiny were quietly, but persistently, working out our salvation. When the hour struck England was fully prepared, confident in her sea power, to take up the gage in defence of all the democracies of the world against the tyrant Power which sought to impose the iron caste of militarism and materialism upon nations that had outgrown mediæval conditions.

It we would realise the bearing of British naval policy in the years which preceded the outbreak of war, we shall do well to cast aside all party bias and personal animosities and study the sequence of events after the manner of the historian who collates the material to his hand, analyses it without fear or favour, and sets down

his conclusions in all faithfulness. Pursuing this course we are carried back to the year 1897. Since the German Emperor had ascended the throne in 1888, he had endeavoured to communicate to his subjects the essential truths as to the influence of sea power upon history which he had read in Admiral Mahan's early books. His educational campaign was a failure. In spite of all the efforts of Admiral von Hollmann, the Minister of Marine, the Reischstag refused to vote increased supplies to the Navy. At last, when he had been finally repulsed, first by the Budget Committee and then by the Reischstag itself, Admiral von Hollmann retired admitting defeat. The Emperor found a successor in a naval officer who, then unknown, was in a few years to change radically the opinion of Germans on the value of a fleet. Born on March 19th, 1849, at Custrin, and the son of a judge, Alfred Tirpitz became a naval cadet in 1865, and was afterwards at the Naval Academy from 1874 to 1876. He subsequently devoted much attention to the torpedo branch of the service, and was mainly responsible for the torpedo organisation and the tactical use of torpedoes in the German Navy—a work which British officers regard with admiration.* Subsequently he became Inspector of her Torpedo Service, and was the first Flotilla Chief of the Torpedo Flotillas. Later he was appointed Chief of the Staff at the naval station

* German Sea Power: Its Rise, Progress and Economic Basis, by Archibald Hurd and Henry Castle (London: John Murray 1913).

in the Baltic and of the Supreme Command of the German Fleet. During these earlier years of his sea career, Admiral Tirpitz made several long voyages. He is regarded as an eminent tactician, and is the author of the rules for German naval tactics as now in use in the Navy. In 1895 he was promoted to the rank of Rear-Admiral, and became Vice-Admiral in 1899. In 1896 and 1897 he commanded the cruiser squadron in East Asia, and immediately after became Secretary of State of the Imperial Navy Office. In the following year he was made a Minister of State and Naval Secretary, and in 1901 received the hereditary rank of nobility, entitling him to the use of the honorific prefix "Von."

With the advent of this sailor-statesman to the Marineamt, the whole course of German naval policy changed, and in 1898 the first German Navy Act was passed authorising a navy on a standard which far exceeded anything hitherto attained. It provided for the following ships:

THE BATTLE FLEET

19 battleships (2 as material reserve).

8 armoured coast defence vessels.

6 large cruisers.

16 small cruisers.

FOREIGN SERVICE FLEET

Large Cruisers

For East Africa	2
For Central and South America	1
Material reserve	3
Total	6

Small Cruisers

For East Asia	3
For Central and South America	3
For East Africa	2
For the South Seas	2
Material reserve	4
Total	14

1 Station ship.

This dramatic departure in German naval policy aroused hardly a ripple of interest in England. Then occurred the South African War, the seizure of the "Bundesrat," and other incidents which were utilised by the German Emperor, the Marine Minister, and the official Press Bureau, with its wide extending agencies for inflaming public opinion throughout the German Empire against the British Navy. The ground having been well prepared, in 1900 the naval measure of

1898, which was to have covered a period of six years, was superseded by another Navy Act, practically doubling the establishment of ships and men. This is not the time, nor does space permit, to trace the evolution of German naval policy during subsequent years or to analyse the successive Navy Acts which were passed as political circumstances favoured further expansion. The story—and it is a fascinating narrative in the light of after events—may be read elsewhere. The fact to be noted is that the British peoples generally viewed the early indications of German naval policy without suspicion or distrust. Most men found it impossible to believe that any Power could hope to challenge the naval supremacy which had been won at such great sacrifice at the Battle of Trafalgar, and which the British people had continued to enjoy virtually without challenge throughout the nineteenth century.

Happily, the hour when preparations had to be made, if made at all, to maintain in face of any rivalry our sea command, produced the man. In the autumn of 1901 Lord Selborne, then First Lord of the Admiralty, paid a special visit to Malta to discuss the naval situation with a naval officer with whose name not a thousand people in the British Isles were then familiar. Sir John Fisher had, as recently as 1899, taken over the command of the Mediterranean Squadron; he had already made a great name in the service as a man of original thought and great courage, possessing a genius for naval politics and naval administration. He had represented the British

Navy at the Hague Peace Conference, but he might have walked from end to end of London, and not a dozen people would have recognised him. In the following March, thanks to Lord Selborne, he became Second Sea Lord, and a naval revolution was inaugurated. Elsewhere I have recapitulated the remarkable Navy of the renaissance of British sea power.*

First, attention was devoted to the *personnel*. New schemes of training for officers and men and for the Naval Reserve were introduced. A new force—the Royal Fleet Reserve—was established, consisting of naval seamen and other ratings who had served afloat for five years or more; a Volunteer Naval Reserve was initiated; steps were taken to revise the administration of the naval establishments ashore, and to reduce the proportion of officers and men engaged in peace duties, freeing them for service in ships afloat. On the anniversary of Trafalgar in 1904, after a short period in command at Portsmouth in order to supervise personally the reforms in training and manning policy already introduced, Sir John Fisher—Lord Fisher as he is now known—returned to the Admiralty as First Sea Lord. Instantly, with the support of Lord Selborne and Mr. Balfour, then Prime Minister, to whom all honour is due, the new Board proceeded to carry into effect vast correlated schemes for the redistribution of the fleets at sea and the more rapid mobilisation of ships in reserve, the reorganisation of the Admiralty, and the re-adjustment of our

* *Fortnightly Review*, September, 1914.

world naval policy to the new conditions in accordance with a plan of action which the new First Sea Lord had prepared months in advance.

Our principal sea frontier has been the Mediterranean. It was necessary to change it, and the operation had to be carried out without causing undue alarm to our neighbours—at that time we had no particular friends, though the foundations of the Entente were already being laid. Without asking your leave from Parliament, the great administrative engine, to which Lord Fisher supplied fuel, proceeded to carry out the most gigantic task to which any Governmental Department ever put its hand. Overseas squadrons which had no strategic purpose were disestablished; unimportant dockyards were reduced to cadres; ships too weak to fight and too slow to run away were recalled; a whole fleet of old ships, which were eating up money and adding nothing to our strength, were scrapped; the vessels in reserve were provided with nucleus crews. With a single eye to the end in view—victory in the main strategical theatres—conservative influences which strove to impede reform were beaten down. With the officers and men taken out of the weak ships, and others who were wrenched from comfortable employment ashore, a great fleet on our new frontier was organised.

In the preamble to the German Navy Act of 1900 it had been stated:

> "It is not absolutely necessary that the German Battle Fleet should be as strong as that of the greatest naval Power, for a great

naval Power will not, as a rule, be in a position to concentrate all its striking force against us. But even if it should succeed in meeting us with considerable superiority of strength, the defeat of a strong German Fleet would so substantially weaken the enemy that, in spite of the victory he might have obtained, his own position in the world would no longer be secured by an adequate fleet."

Lord Fisher had not studied the progress of the German naval movement without realising that in this passage was to be found the secret of the strategic plan which the German naval authorities had formed. With the instinct of a great strategist, he reorganised the whole world-wide machinery of the British Navy, in order to suit the new circumstances then developing.

The war in the Far East had shown that changes were necessary in the design of British ships of all classes. The First Sea Lord insisted that the matter should have immediate attention, and a powerful committee of naval officers, shipbuilders, and scientists began its sittings at the Admiralty. The moment its report was available, Parliament was asked for authority to lay down groups of ships of new types, of which the "Dreadnought" was the most famous. *In the preceding six years, sixteen battleships had been laid down for Great Britain, while Germany had begun thirteen; our sea power, as computed in modern ships of the line, had already begun to shrink.* Secretly and rapidly, four units of the new type—the "Dreadnought,"

with her swift sisters, the "Indomitable," "Inflexible," and "Invincible"—were rushed to completion. No battleship building abroad carried more than four big guns; the "Dreadnought" had ten big guns, and her swift consorts eight.* Thus was the work of rebuilding the British Fleet initiated. Destroyers of a new type were placed in hand, and redoubled progress was made in the construction of submarines, which Lord Fisher was the first to realise were essential to this country, and were capable of immense development as offensive engines of warfare. We gained a lead of eighteen months over other Powers by the determined policy adopted.

Just as the task of rebuilding the Fleet had been initiated, a change of Government occurred, and there was reason to fear that the stupendous task of reorganising and re-creating the bases of our naval power would be delayed, if not abandoned. In Lord Fisher the nation had, fortunately, a man of iron will. Though Sir Henry Campbell-Bannerman, above all things

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* It is officially admitted by the United States Navy Department that it had prepared plans for a ship similar in armament to the Dreadnought in 1904, and was awaiting the approval of Congress before beginning construction. American officers had come to the same conclusions as to the inevitable tendency of battleship design as the British Admiralty.

Owing to the delay imposed by the necessity of obtaining the consent of Congress, the United States lost the advantage; in the exercise of its powers, the British Admiralty acted directly the designs of the new ships were ready.

desirous of arresting the rivalry in naval armaments, was Prime Minister, and Lord Tweedmouth was First Lord of the Admiralty, Lord Fisher, supported by his colleagues on the Board, insisted on essentials. Delays occurred in German shipbuilding, and the Admiralty agreed that British shipbuilding could be delayed. In 1906, 1907, and 1908 only eight Dreadnoughts were begun. Subsequent events tend to show that this policy was a political mistake, though we eventually obtained more powerful ships by the delay. Germany was encouraged to believe that under a Liberal Administration she could overtake us. *Between* 1906 *and* 1908 *inclusive we laid down eight large ships of the Dreadnought type; and Germany laid down nine, and began to accelerate her programme of* 1909.

Then occurred a momentous change in British affairs. Lord Tweedmouth, after the famous incident of the German Emperor's letter, retired from office (1908), and his place was taken by Mr. Reginald McKenna, who was to show that a rigid regard for economy was not incompatible with a high standard of patriotism. In association with the Sea Lords, he surveyed the naval situation. In the following March occurred the naval crisis. Germany had accelerated her construction, and our sea power was in peril. The whole Board of Admiralty determined that there was no room for compromise. Mr. McKenna, it is now no secret, found arrayed against him a large section of the Cabinet when he put forward the stupendous programme of 1909, making provision for eight Dreadnoughts, six protected

cruisers, twenty destroyers, and a number of submarines. The naval crisis was accompanied by a Cabinet crisis, in spite of the fact that Sir Edward Grey, as Foreign Secretary, gave the naval authorities his full support. *Unknown to the nation, the Admiralty resigned, and for a time the Navy had no superior authority.* This dramatic act won the day. The Cabinet was converted; the necessity for prompt, energetic action was proved. The most in the way of compromise to which the Board would agree was a postponement in announcing the construction of four of the eight armoured ships. But from the first there was no doubt that, unless there was a sudden change in German policy, the whole octette would be built. When the programme was presented to the House of Commons, the Prime Minister and Sir Edward Grey gave to Mr. McKenna their wholehearted support; either the Government had to be driven from office, or the Liberal Party had to agree to the immense commitment represented in the Navy Estimates. The programme was agreed to.

This, however, is only half the story. Neither the Government nor the Admiralty was in a position to tell the country that, though all the ships were not to be laid down at once, they would all be laid down in regular rotation, in order that they might be ready in ample time to meet the situation which was developing. Perhaps it was well in the circumstances that this fact was not revealed. Public opinion became active. The whole patriotic sentiment of the country was roused, and the jingle was heard on a thousand

platforms, "We want eight and we won't wait." The Admiralty, which had already determined upon its policy, remained silent and refused to hasten the construction of the ships. Quietly, but firmly, the Board resisted pressure, realising that it, and it only, was in possession of all the facts. Secrecy is the basis of peace as well as war strategy. The naval authorities were unable to defend themselves by announcing that they were on the eve of obtaining a powerful weapon which could not be ready for the ships if they were laid down at once. By waiting the Navy was to gain the most powerful gun in the world.

In order to keep pace with progress in Germany, it was necessary to lay down two of the eight ships in July, and be satisfied with the 12-inch guns (projectile of 850 lbs.) for these units. The construction of the other six vessels was postponed in order that they might receive the new 13·5-inch gun, with a projectile of about 1,400 lbs. Two of the Dreadnoughts were began at Portsmouth and Devonport Dockyards in the following November, and the contracts for the remaining four were not placed until the spring, for the simple reason that the delivery of the new guns and mountings and their equipment could not be secured for the vessels, even if their hulls were started without a moment's delay. Thus we obtained six battleships which are still unique; in no other Navy is so powerful a gun to be found to-day as the British 13·5-inch weapon. In 1910 and in 1911 Mr. McKenna again fought for national safety, and he won the essential provision for the Fleet. He risked his all in defence of our sea

power. He was probably during those years of struggle the most unpopular Minister the Liberal Party ever had. What has been the sequel of his tenacity and courage and patriotism? What has been gained owing to the bold front which Lord Fisher presented, as First Sea Lord, supported by his colleagues? Sixteen of the eighteen battleships and battle-cruisers of the Dreadnought type, the fifteen protected cruisers, and the sixty destroyers, with a group of submarines, which the Board over which Mr. McKenna presided secured, constituted the spearhead of the British Fleet when the crisis came and war had to be declared against Germany in defence of our plighted word.

With the addition of one more chapter, this story of the renaissance of British sea power is complete. In the autumn of 1911, over seven years after Lord Fisher had begun to shake the Navy into renewed life, encouraged Sir Percy Scott in his gunnery reforms, and brought to the Board the splendid intellect of Sir John Jellicoe, Mr. Winston Churchill replaced Mr. McKenna as First Lord. Thus the youngest statesman of the English-speaking world realised his ambition. Lord Fisher, under the age clause, had already been compelled to vacate his seat on the Board, retiring with a peerage, and his successor, Sir Arthur Wilson, was also on the eve of retirement. Mr. McKenna had to be freed to take over the Welsh Church Bill and to place his legal mind at the service of the country at the Home Office. He had done his work and done it well. Mr. Winston Churchill proved the ideal man to put

the finishing touches to the great task which had been initiated during Lord Selborne's period of office. Perhaps the keynote of his administration is to be found in the attention which he devoted to the organisation of the War Staff, the elements of which had been created by former Boards, and the readjustment of the pay of officers and men. No service is efficient for war in which there exists a rankling feeling of injustice. The rates of pay of officers and men were revised and increased; facilities were opened up for men of the lower deck to reach commissioned rank. About 20,000 officers and men were added to the active service of the Fleet. At the same time with the ships provided by former Boards, the organisation of the ships in Home waters was placed on a higher standard of efficiency, particular attention being devoted to the organisation of the older ships so as to keep them efficient for war. The Naval Air Service was established, and its development pressed forward with all speed. Thus the work of reform and the task of changing the front of the British Navy had been brought to completion, or virtual completion, at the moment when Germany, by a concatenation of circumstances, was forced into a position where she had to fight the greatest of sea Powers, or admit the defeat of all her ambitions.

A study of the sequence of events which immediately preceded the outbreak of hostilities is hardly less interesting than the earlier and dramatic incidents which enabled us to face the supreme crisis in our history with a measure

of assured confidence. On March 17th, 1914, Mr. Winston Churchill spoke in the House of Commons on the Navy Estimates. It is common knowledge that he had just fought a stern battle in the Cabinet for adequate supplies, and it was assumed at the time, from various incidents, that he had been compelled to submit to some measure of retrenchment. He received, however, Cabinet authority to ask Parliament for the largest sum ever devoted to naval defence—£51,500,000. In the course of his speech on these Estimates he made the announcement that there would be no naval manœuvres in 1914. He stated:

> "We have decided to substitute this year for the grand manœuvres—not, of course, for the numberless exercises the Fleet is always carrying out—a general mobilisation of the Third Fleet.* We are calling up the whole of the Royal Fleet Reserve for a period of eleven days, and those who come up for that period will be excused training next year, and will receive £1 bounty in addition to their regular pay.
>
> "We have had a most admirable response. 10,170 men, seamen, and others, and 1,409 marines, are required to man the ships of the Third Fleet. We have already, in the few days our circular has been out, received replies from 10,334 men volunteers, and from 3,321 marines. I think that reflects great credit on the spirit of the Reserve

* The Third Fleet consists of the oldest ships of the Navy maintained in peace with skeleton crews.

generally, and also reflects credit upon the employers, who must have greatly facilitated this operation all over the country. I hereby extend to them the thanks of the Admiralty.

"This test is one of the most important that could possibly be made, and it is really surprising to me that it has never been undertaken before. The cost, including the bounty of £1, will be about £50,000. Having no grand manœuvres yields a saving of £230,000, so there is a net saving on the substitution of £180,000."

It was hardly surprising in the circumstances that many persons thought the Admiralty was bent merely upon economy. If the naval authorities had had foreknowledge of the course of events they could not, in fact, have adopted a wiser course. From March onwards, week by week down to the middle of July, the elaborate and complicated drafting arrangements were examined and readjusted. Then, after the assassinations at Sarajevo and on the eve of the final developments on the Continent, which were to make war inevitable, the test mobilisation was carried out. The principal ships passed before the King off the Nab Lightship, a column of seaplanes and aeroplanes circling high above the ships, and then disappeared in the Channel to carry out what were believed to be peace exercises, but were, in fact, to prove the manœuvres preliminary to war. Later in the same week, the vessels of the Patrol Flotillas were engaged in testing a new scheme for sealing this narrow exit to the North Sea.

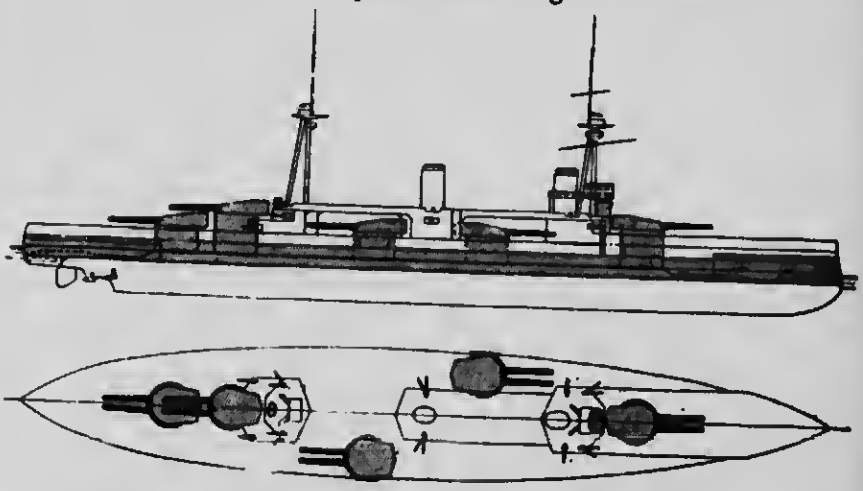
H.M.S. Neptune. *Photo: Sport & General.*

NEPTUNE CLASS.

COLOSSUS, NEPTUNE, HERCULES (slight differences).

Displacement: 19,200 to 20,000 tons.

Speed: 22 knots; Guns: 10 12in., 16 4in.; Torpedo tubes: 3.



Astern fire: 8 12in.

Broadside: 10 12in.

Ahead fire: 6 12in.

A week afterwards the thunderbolt fell; the crisis found the First and Second Fleets ready in all respects for war, and, after additional reserves had been called out on Sunday, August 2nd, the Admiralty was able to give the nation a certificate that by 4 a.m. the following morning the British Navy had been raised from a peace footing to a war footing, and was fully mobilised.

Immediately the curtain fell, hiding from view the movements of all British men-of-war, not only in the main strategical theatre, but in the outer seas. Two battleships, which had just been completed for Turkey by those whom Mr. G. H. Perris had denounced only a short time before in his pamphlet as the "War Traders," were taken over by the Admiralty, proving valuable accessions to our naval strength. Two swift destroyer-leaders were also compulsorily purchased from Chile, the appointment of Admiral Sir John Jellicoe as supreme British Admiral of the Home Fleets was announced, and all the preliminaries to the great war drama on the sea were completed without delay, confusion, or panic. The nation will remember in gratitude the courage and decision exhibited by Mr. Churchill in the hour of supreme crisis. He proved himself a statesman.

This is not the place to relate the story of the renaissance of British military power. The virtue of the measures adopted by Lord Haldane as Secretary for War lay in the fact that he did homage to the essential principle which must underlie all schemes of defence by an island kingdom, which is the nerve centre of a maritime

Empire. As in Opposition he had been foremost in advertising our dependence upon the sea, so in office, as Minister responsible for the Army, he based all his schemes on the assumption that the British Army is the projectile of a supreme fleet, to be hurled oversea as soon as the naval authority is able to give guarantee of safe passage. It was in the light of this essential truth that the Expeditionary Force was organised, and the Volunteers converted into the Territorial Army. Mistakes were, no doubt, made; no man who avoids them can ever expect to do anything. But at practically no additional expense, and without, therefore, withdrawing a penny from the necessary provision of the fleet, Lord Haldane initiated and completed military schemes, the value of which became apparent when we were confronted with the necessity of entering upon a contest with two of the great military powers of Europe, which possessed fleets of such a standing that they could offer challenge to our supremacy afloat.

The survey of British naval policy in the years immediately preceding the war would be incomplete were no reference made to the fact, of which we were insistently reminded when hostilities opened, that sea power, even more than military power, must stand defeated from the very outset, unless it is supplemented by economic power. In the past the weakness of all democracies when faced by war has been apparent. However great the power on the sea, however formidable the military arm ashore, the real strength of a people lies in itself. It must be ready on the instant to organise

every department of life on a war basis. Armed forces which have not behind them a resolute community are robbed of more than half their power. A feeling of panic is always apt to infect a democracy, and then under the palsy of fear the tendency is for pressure to be brought to bear on the supreme naval and military authorities, with the result that strategic plans, matured in peace, become confused and ineffective. An illustration of the influence of the fears of the civil population upon war policy was furnished during the Spanish-American War. Under the pressure of nervous public opinion, the Naval Board was compelled to depart from the sound strategy of concentration upon the main objective, and to dissipate no little of the power at its command in order to provide some measure of local protection for various coast towns. Fortunately, British naval policy had been developed on lines which minimised this peril, and our economic resources had been surveyed, and adequate preparations made to afford to our sea power every possible economic support. As to the first, fear of invasion or raids, the coast and port guard ships, with little more than skeleton crews, had been abolished; in their place patrol flotillas of destroyers and submarines had been created to keep an efficient and active watch and ward along the sea frontier which the enemy at our door might threaten. This provision was supplemented by the mobilisation of all our national resources, under the direction of the Committee of Imperial Defence. When Mr. Balfour founded this body he builded

better than he knew. When war came not only were the main fleets not tied to our shores, but every department of State had before it a complete plan of the duty which it had to perform in order to give that national support to the fleet, without which it could not hope to achieve victory.

During the years which immediately preceded war the Committee of Imperial Defence was quietly at work co-ordinating the naval and military arms, and laying the foundation of a wide-spreading organisation. On July 25th, 1912, Mr. Asquith, in a speech in the House of Commons, gave the nation some conception of the character of one aspect of the work which was then being quietly performed by this small body, unrecognised by our Constitution, and regarded, as it had been since its birth, with no little suspicion and distrust. Mr. Asquith related that the Committee of Imperial Defence had appointed what was styled "a sub-committee for the co-ordination of departmental action at the outbreak of war." Describing this particular work of the Committee of Imperial Defence, Mr. Asquith added:

> "This sub-committee, which is composed of the principal officials of the various Departments of State, has, after many months of continuous labour, compiled a War-Book. We call it a War-Book—and it is a book which definitely assigns to each Department—not merely the War Office and the Admiralty, but the Home Office,

the Board of Trade, and every Department of the State—its responsibility for action under every head of war policy. The Departments themselves, in pursuance of the instructions given by the War-Book, have drafted all the proclamations, Orders in Council, letters, telegrams, notices, and so forth, which can be foreseen. Every possible provision has been made to avoid delay in setting in force the machinery in the unhappy event of war taking place. It has been thought necessary to make this Committee permanent, in order that these war arrangements may be constantly kept up to date."

What happened in the last days of July, 1914? During the period of strained relations, the War-Book was opened, and every official in every State Department concerned—eleven in all—had before him a precise statement of exactly what contribution he had to make in mobilising the State as an economic factor for war. Proclamations, Orders in Council, letters, and telegrams flowed forth throughout the British Isles, and to the uttermost parts of the Empire, in accordance with the pre-arranged plan which had been so assiduously elaborated. Hardly had the Navy been mobilised, the Army Reserves called out to complete the regular Army, and the Territorials embodied, than the nation realised that, without confusion, it had itself been placed upon a war footing. The creation of the British War-Book must be acclaimed as a monument to the

perspicacity of Mr. Asquith and the Ministers who assisted him on the Committee of Defence, and to the splendid labours of the Secretary of the Committee, Captain Maurice Hankey, C.B., and the small staff associated with him. This organisation, which owed so much to the "staff mind" of its former secretary, Rear-Admiral Sir Charles Ottley, imposed upon the nation a charge of only about £5,000 a year, which was returned increased by a thousandfold when the crisis came, and the United Kingdom, existing under the most artificial conditions owing to its dependence on the sea for food and raw materials, was prepared, for the first time in its history, to offer to its fleets and armies the wholehearted and organised support of the richest nation in the world.

When the curtain fell upon the seas, the nation had the assurance that everything which foresight could suggest had been done to make secure our essential supremacy. The newspapers preserved a discreet silence as the Home Fleets took up their stations in the main strategical area. They were convinced, by irrefutable evidence, that adequate power had been concentrated in this theatre to enable the North Sea to be sealed, thus confining the main operations of the naval war to one of the smallest water areas in the world.

Those who study the conspectus of British sea power at the moment when the fog of war hid from view all that was occurring in distant waters would miss the real significance of the picture which British sea power presented at this

dramatic moment if they failed to recognise the means by which the British Navy was able to impose an iron grip upon the great highways which are the life blood of British commerce. When war occurred the British sea power was predominant in all the outer seas in contrast with every other Power engaged in hostilities. At every point the British fleet was supreme in contrast with every other Power now engaged in hostilities. Austria and Italy were hardly represented outside the Mediterranean; Germany had only one armoured ship and two small cruisers in the Mediterranean and a few small cruisers in the Atlantic; in the Pacific, though she had the largest squadron of any Continental Power, the Admiralty regarded our forces as being at least twice as strong. This balance of strength was maintained in accordance with the terms of the Anglo-Japanese Alliance.

From the moment of the ultimatum all the Empire was at war. At a hundred and one points of naval and military importance a state of war existed. Wherever the British flag was flying—and it flies over about one quarter of the habitable globe—officers and men of the sea and land services stood awaiting the development of events.

What precise orders were issued by the Admiralty cannot be revealed, but telegrams which were received during the early days of hostilities indicated that at all the great junctions of the Empire sections of the British Navy had been concentrated, and their commanding officers

directed to omit no measure necessary to maintain the lifeline of the Empire.

Under the scheme of concentration which for ten years previously had been the outstanding feature, not only of British naval policy, but of the naval policy of all the Great Powers of Europe, the number of ships in distant seas had been reduced, but the fighting value of the British units was higher than ever before. The character of the British naval representation outside home waters when war began may be appreciated from the following official statement of the composition of the squadrons which were held on the leash by the Admiralty, awaiting the development of events:

MEDITERRANEAN FLEET.

BATTLE CRUISER SQUADRON.—Inflexible (Flag), Indefatigable, Indomitable.

ARMOURED CRUISER SQUADRON. — Defence (Flag), Black Prince, Duke of Edinburgh, Warrior.

CRUISERS.—Chatham, Dublin, Gloucester, Weymouth.

ATTACHED SHIPS.—Hussar, Imogene.

DESTROYER FLOTILLA.—Blenheim (Depot Ship), Basilisk, Beagle, Bulldog, Foxhound, Grampus, Grasshopper, Harpy, Mosquito, Pincher, Racoon, Rattlesnake, Renard, Savage, Scorpion, Scourge, Wolverine.

SUBMARINES.—B 9, B 10, B 11,

TORPEDO BOATS.—Nos. 044, 045, 046, 063, 064, 070.

GIBRALTAR.

SUBMARINES.—B 6, B 7, B 8.

TORPEDO BOATS.—83, 88, 89, 90, 91, 92, 93, 94, 95, 96.

EASTERN FLEET.

EAST INDIES SQUADRON.—Battleship Swiftsure (Flag), cruisers Dartmouth, Fox; sloops Alert, Espiégle, Odin, Sphinx.

CHINA SQUADRON.—Battleship Triumph; armoured cruisers Minotaur (Flag,, Hampshire; cruisers Newcastle, Yarmouth; gunboats, etc., Alacrity, Bramble, Britomart, Cadmus, Clio, Thistle.

NEW ZEALAND DIVISION.—Cruisers Philomel, Psyche, Pyramus, Torch.

ATTACHED TO CHINA SQUADRON.

DESTROYERS.—Chelmer, Colne, Fame, Jed Kennet, Ribble, Usk, Welland.

SUBMARINES.—C 36, C 37, C 38.

TORPEDO BOATS.—Nos. 035, 036, 037, 038.

RIVER GUNBOATS.—Kinsha, Moorhen, Nightingale, Robin, Sandpiper, Snipe, Teal, Woodcock, Woodlark, Widgeon,

AUSTRALIAN FLEET.

BATTLE CRUISERS.—Australia (Flag.)

CRUISERS.—Encounter, Melbourne, Sydney.

DESTROYERS.—Parramatta, Warrego, Yarra.

SUBMARINES.—AE 1, AE 2.

CAPE OF GOOD HOPE.

CRUISERS.—Hyacinth (Flag), Pegasus, Astræa.

WEST COAST OF AFRICA.

GUNBOAT.—Dwarf.

S.E. COAST OF AMERICA.

CRUISER.—Glasgow.

WEST COAST OF AMERICA.

SLOOPS.—Algerine, Shearwater.

WEST ATLANTIC.

ARMOURED CRUISERS.—Suffolk, Berwick, Essex, Lancaster; cruiser Bristol.

This narrative of the opening phases of the war between six of the great fleets of the world would be incomplete were no reference made to the conditions of the German Fleet. A month

before the final cleavage between the two nations, Kiel had kept high festival in honour of the British Navy. At the invitation of the German Government, Vice-Admiral Sir George Warrender had taken some of the finest battleships of the British Navy into this German port. During the Regatta Week official Germany entertained the officers and men with the utmost hospitality, and, for a time, the Emperor had his flag, the flag of an honorary admiral of the British Navy, flying from the mainmast of one of the latest "Dreadnoughts," the "King George V.," and was in technical command of this important section of the Home Fleet. Luncheons, dinners, and receptions filled the days over which the yacht racing extended, and when Sir George Warrender steamed out of Kiel to meet at a rendezvous at sea the British squadron, under Rear-Admiral Sir David Beatty, which had been visiting the Baltic ports of Russia, and the other squadrons which had been entertained by the peoples of Denmark, Norway, and Sweden, every indication encouraged the belief that peace was more completely assured than at any time during this century.

The Kiel festivities at an end, the High Sea Fleet, reinforced by a number of reserve ships, put to sea for its summer cruise in Norwegian waters. The Emperor, in the Royal Yacht "Hohenzollern," also left for the coast of Norway. These were the conditions when the bolt fell. Can it be doubted that, when in after years and in full knowledge, the history of the war is written, it will be concluded that Germany, in

giving her support to Austria-Hungary, had no thought that this would involve her use of her fleet against the greatest sea Power of the world? With much labour, and at great sacrifice, she had created a formidable diplomatic weapon to be brandished in the eyes of a timid and commercially-minded people—and such she believed the British people to be; but it was not a fleet of sufficient standing to face the greatest sea Power with confidence.

The war occurred at an unpropitious moment not only for Germany, but for her ally, Austria-Hungary, so far as sea power was concerned. This country had, it is true, almost completed her first programme of four "Dreadnoughts," but her navy was still deficient in cruisers—possessing six only—as well as in torpedo craft. In combination Austria-Hungary and Italy could have faced the naval forces of France and Great Britain in the Mediterranean, but in isolation the former's position was from the first well-nigh hopeless, and her ships retired to Pola at the outbreak of the war.

The French fleet was in good condition to take the seas. Under the spur furnished by German acts and German words it had been strengthened in ships and men, its administration ashore remodelled, and its fleets at sea reorganised. The Republican Government had confided the supreme command of its battle forces to one of the most conspicuously able sailors of the period, Admiral Boué du Lapeyrére, and could enter on the war in its naval aspects with confidence and courage.

Russia was not so fortunate. She had only comparatively recently taken serious steps to replace the fleet she lost in the war with Japan. A ship-building project, known as the "Minor Programme," was being carried out, but so far none of the vessels it comprised had become available for service. When war occurred, four "Dreadnoughts," which were begun as far back as 1909, were not yet ready, and seven others were on the stocks, but not yet launched. Eight small cruisers laid down under the "Minor Programme" were building, two of them in a German yard, and the remainder in Russia, and there was besides a large flotilla of torpedo craft under construction. With all these vessels in commission, the Russian Navy would have become once more a factor to be reckoned with. As it happened, Russia faced the war practically without any considerable sea power.

When hostilities had begun, a dramatic incident reminded the world that Japan, the ally of Great Britain in the Far East, was not viewing the course of events unconcerned. On Monday, August 16th, it was announced that the Japanese Government had delivered an ultimatum to Germany in the following terms:

> "We consider it highly important and necessary in the present situation to take measures to remove the causes of all disturbance of peace in the Far East, and to safeguard general interests as contemplated in the Agreement of Alliance between Japan and Great Britain.

"In order to secure firm and enduring peace in Eastern Asia, the establishment of which is the aim of the said Agreement, the Imperial Japanese Government sincerely believes it to be its duty to give advice to the Imperial German Government to carry out the following two propositions:

"1. Withdraw immediately from Japanese and Chinese waters the German men-o'-war and armed vessels of all kinds, and to disarm at once those which cannot be withdrawn.

"2. To deliver on a date not later than September 15th to the Imperial Japanese authorities, without condition or compensation, the entire leased territory of Kiau-Chau, with a view to the eventual restoration of the same to China.

"The Imperial Japanese Government announces at the same time that in the event of its not receiving by noon on August 23rd an answer from the Imperial German Government signifying unconditional acceptance of the above advices offered by the Imperial Japanese Government, Japan will be compelled to take such action as it may deem necessary to meet the situation."

When Germany was confronted with heavy odds, Japan remembered the events following the war of 1894–5, when this Power,

having joined in robbing her of the spoil of her victory over China, herself entered into possession of Kiao Chau, as the price for the lives of two murdered missionaries.

Thus, at the touch of German arrogance, four great sea Powers of the world arrayed themselves against her—the British, French, and Russian fleets in European waters, and the great navy of Japan in the Pacific.

In this wise did the struggle for the command of the sea open. Germany reaped as she had sown. Since 1898 she had boasted how she would challenge the greatest sea Power. When the day and hour came it was not the British fleet only, but the navies of France, Russia, and Japan which confronted her. By her words and acts she had alienated the sympathies of every nation except her ally, Austria-Hungary. The war began with her fleets and squadrons sheltering behind the forts of her naval bases, and with a few cruisers in the Atlantic being hunted by an overpowering force of British and French ships. Such was the fruit of her diplomacy and her forward naval policy; her shipping suffered instant strangulation; her colonies were divorced from the Motherland, and she was confronted with the approaching ruin of that world-politic which had been her pride and inspiration.

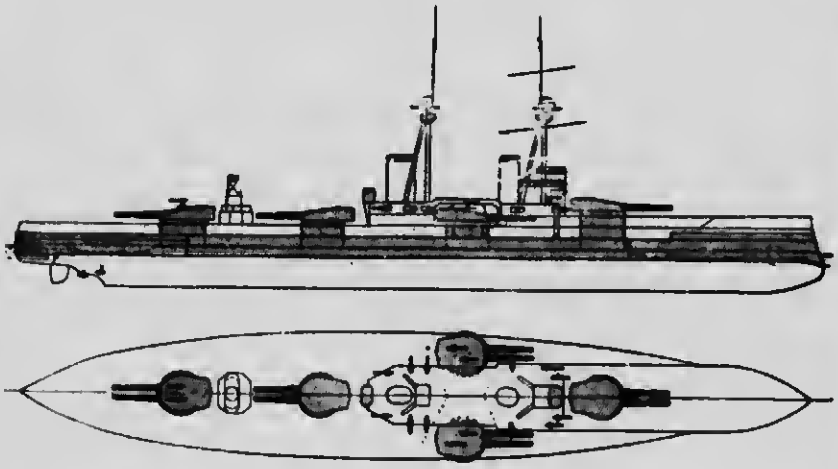
H.M.S. Vanguard. *Photo: Sport & General.*

VANGUARD CLASS.

ST. VINCENT, VANGUARD, COLLINGWOOD.

Displacement: 19,250 tons.

Speed: 22 knots; Guns: 10 12in., 18 4in.;
Torpedo tubes: 3.



Astern fire:	Broadside:	Ahead fire:
6 12in.	8 12in.	6 12in.

CHAPTER I

The Relative Standing of the British and German Fleets

The relative strength of the British and German navies at the moment when war was declared is of historical interest.

The appended particulars have been prepared from "Fighting Ships, 1914," and brought-up to-date by the inclusion of the two Turkish battleships and the two Chilian destroyer leaders, which were purchased on the outbreak of hostilities by the British Government.

British Navy.

Super-Dreadnought battleships -	11	
Super-Dreadnought battle-cruisers -	3	
	—	14
Dreadnought battleships - -	13	
Dreadnought battle-cruisers - -	5	
	—	18
Total of ships of Dreadnought era: (Three more super-Dreadnoughts near completion, and due to commission late in 1914.)		32

Pre-Dreadnoughts:		
Powerful ships all completed between 1905 and 1908 - -	8	
Older and less powerful ships completed between 1895 and 1904 -	30	
	—	38
Total battleships - -		70
Armoured Cruisers:		
Big, heavily-armed ships completed between 1905 and 1908 -	9	
"County" class, slower and less powerful, completed between 1903 and 1905 - - -	15	
"Drake" and "Cressy" class, bigger and better, but slightly older ships, completed between 1901 and 1903 - - -	10	
Total armoured cruisers -	—	34
Cruisers:		
Big protected cruisers, "Diadem" class, 21 knots, 6in. guns (1889–1902) - - - - -	6	
Older and smaller (1890–1892) -	9	
	—	15
Fast Light Cruisers:		
"Arethusa" class, 3,500 tons, 30 knots, burning oil, completed 1914 - - - - -	8	8
"Town" class, 5,400 to 4,800 tons, 25 knots (1910–1914) -	15	

25-knot ships, round about 300 tons (1903–1907) - - -	15	
	—	30
20-knot ships, 2,100 to 5,400 tons (1896–1900) - - - -	16	16
19-knot ships, 5,600 tons (1895–1896) - - - - - -	9	9
Older ships, 2,500 to 4,300 tons, 16·5 to 19·5 knots (1890-1893)	9	9
Total protected cruisers -		87
Destroyers, 36 to 25½ knots (1893-1914) - - - - - -		227
Torpedo-boats, 26 to 20 knots (1885–1908) - - - - - -		109
Submarines, from 1,000 to 200 tons, speed from 20 to 11·5 knots surface, 12 to 7 knots submerged (1904–1913) - -		75
Minelayers - - - - - -		7
Repair Ships - - - - - -		3

It need hardly be added that a number of these vessels—including the two Pre-Dreadnought battleships "Swiftsure" and "Triumph" and groups of cruisers, destroyers, and submarines—were on duty in the outer seas when war opened.

German Fleet.

Super-Dreadnoughts (3 building) -		None
Dreadnought battleships - -	13	
Dreadnought battle-cruisers - -	5	
	—	18
(Three other battleships are due to commission in 1914.)		
Pre-Dreadnought battleships (1891–1908) - - - - -		22
Old coast defence battleships (1889–1893) - - - - - -		8
Armoured cruisers (1897–1909) 8,900 to 15,500 tons, 24·5 to 19 knots - - - - -		9
Big protected cruisers (1892–1910), 6,000 tons, 19 knots - -	6	
24-knot cruisers (1904–1913), 3,000 to 5,000 tons - - - -	25	
	—	31
(Most of these ships have belt armour as thick as that of the British "County" class of armoured cruisers.)		
Small cruisers, 21 knots (1893-1910)		12
Destroyers (1889–1913), 34 to 26 knots - - - - -		152
Torpedo-boats (1887–1898), 26 to 22 knots - - - - -		45
Submarines, about equal to British in size and speed - - -		30 to 40
Minelayers - - - - -		2

All the German Navy, except one battle-cruiser, two armoured cruisers, and a few light cruisers, were concentrated in the North Sea and Baltic when war occurred.

CHAPTER II

The British Navy

BRITISH BATTLESHIPS

DREADNOUGHTS

IRON DUKE CLASS.

IRON DUKE (Flagship of Vice-Admiral Sir John Jellicoe, Commander-in-Chief of the Home Fleets).

MARLBOROUGH. EMPEROR OF INDIA.

BELLEROPHON.

(Completed 1914.)

These fine ships are the very latest additions to the British battle-fleet. The displacement is 25,000 tons, but with a full supply of coal, ammunition, and stores on board the actual figure is nearly 27,000 tons. The length over all is 645 ft., the maximum breadth is 89½ ft., and under normal conditions the ship draws 28ft. of water. Parsons' turbines, designed for 29,000 h.p., give a speed of 21 knots, which was exceeded by over one knot on trial. An extremely powerful armament is carried. It consists of ten 13.5-in. and twelve 6-in. guns, with some small quick-firers on high-angle mountings for use against aircraft.

The big guns, mounted in twin turrets, are all on the centre line, and can thus be trained

on either broadside, while four train ahead and the same number astern. Ten of the 6-in. guns are disposed in an upper-deck battery forward, the remaining two in casemates right at the stern. This disposition was adopted owing to the fact that torpedo attacks are usually delivered from ahead, and it is necessary, therefore, that as many quick-firing guns as possible can be trained on the approaching boats before they are able to discharge their torpedoes.

Armour protection is very complete in this class. On the waterline there is a 12-in. belt, with 10-in. armour rising above this as far as the upper deck. The belt thins to 6-in. forward and aft, but the extreme ends of the ship are unarmoured. On the turrets there is 12-in. armour, with 6-in. plating over the secondary battery. Four 21-in. submerged torpedo tubes are fitted. The fuel supply is well over 3,000 tons. The complement of these ships totals more than 1,000 officers and men. They each cost over £2,000,000 complete.

AGINCOURT.

(Completed 1914.)

This battleship, although she was only launched in January, 1913, has had a very chequered career. Originally laid down as the Rio de Janeiro for the Brazilian Government at Elswick, she was purchased before completion by Turkey, and was on the point of leaving for Turkish waters under the name of Osman I.,

when she was taken over by the British Admiralty on the outbreak of war with Germany. Turkey is understood to have made a protest, but the transfer is an accomplished fact, and this fine vessel has already passed into our battle fleet. She is quite unique in design. The displacement is 27,500 tons, length 632 ft., and the designed speed, which was made on trial, 22 knots.

Her main armament consists of no fewer than fourteen 12-in. guns, mounted in seven double turrets on the centre-line, an arrangement which permits all fourteen weapons to be fired on either broadside. In the secondary battery are mounted twenty 6-in. quick-firing guns, and the tale of weapons is completed by sixteen small quick-firers and three torpedo tubes. The ship is armoured with 9-in. plates amidships, tapering to 6 in. and 4 in. at the ends. Armour of the same thickness (9-in.) protects the 12-in. turrets, and there is 6-in. plating over the secondary guns. The maximum coal capacity is 3,500 tons. A complement of 1,100 officers and men is required to work this huge vessel, which cost nearly £2,700,000 to build and equip.

ERIN.

(Completed 1914.)

This vessel was laid down at Barrow for the Turkish Government, and named Reshadieh, but was taken over by the British Admiralty on the outbreak of war with Germany. Launched in September, 1913, she displaces 23,000 tons,

is 525 ft. long, and has turbines of 31,000 h.p., which are expected to give a speed of 21 knots. In general her design corresponds to that of the Iron Duke class. The armament consists of ten 13·5-in., sixteen 6-in., and four 12-pounder guns, with five submerged torpedo tubes.

The five double turrets in which the big guns are mounted are on the centre-line, thus allowing all ten weapons to be used on each broadside. Armour protection is very complete, the main belt being 12 in., the turrets 12 in., and the secondary battery 5 in. thick. Her coal capacity is 2,100 tons. The complement is 900 officers and men. The price paid for this ship has not yet been made public.

KING GEORGE V. CLASS.

(Completed 1912–13.)

KING GEORGE V.	CENTURION.
AJAX.	AUDACIOUS.

These fine vessels are among the most powerful of our super-Dreadnought battleships. The displacement is nominally 23,000 tons, but when in service, with maximum fuel, stores, &c., on board, they displace about 25,000 tons. They are 596 ft. in length, with a beam of 89 ft., and their turbines of 27,000 h.p. drive them at a speed of 21½ knots. The armament consists of ten 13·5-in. and sixteen 4-in. guns, with three submerged torpedo tubes.

All the big guns, which are mounted in pairs in turrets on the centre line, can fire on either broadside. Protection is afforded by a 12-in. armour belt amidships, with thinner plating above and at the ends. The turrets are of 11-in. armour. The secondary battery of 4-in. quick-firers is practically unprotected. A maximum fuel supply of 2,700 tons can be carried. The complement is 900 officers and men. Each of these ships cost more than £1,900,000 to build and equip.

ORION CLASS.

(Completed 1911–12.)

ORION.	CONQUEROR.
MONARCH.	THUNDERER.

Super-Dreadnoughts of 22,500 tons displacement and 545 ft. in length. The Orion class, to which these ships belong, inaugurated the "super-Dreadnought" era by reason of the super-calibre guns with which they are armed. They are propelled by Parsons' turbines of 27,000 h.p. at a speed of 21 knots, but did considerably better than this on the trial runs. The main armament comprises ten 13·5-in. breech-loading guns, firing a 1,250 lb. projectile at the rate of two per minute.

These guns are mounted in five twin turrets on the centre line of the vessel, and all of them can be trained on either broadside. Sixteen

4-in. quick-firers are mounted for use against torpedo craft, and there are three 21-in. submerged torpedo tubes. The armour belt is 12-in. thick amidships, the turrets 11-in. Some of the smaller guns are protected by 4-in. armour. Coal and oil to the amount of 2,700 tons can be carried. The complement of these ships is 900 officers and men. They cost complete nearly £2,000,000.

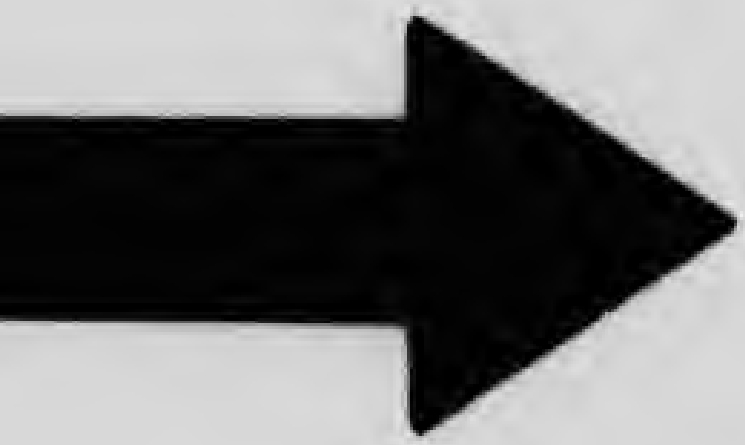
NEPTUNE CLASS.

(Completed 1911.)

NEPTUNE. COLOSSUS.
HERCULES.

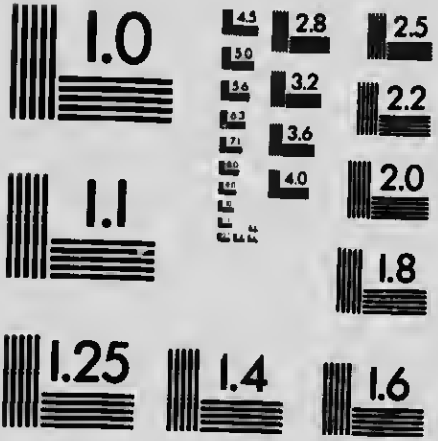
These are Dreadnought battleships of 20,000 tons displacement. They are 510 ft. in length, and have Parsons' turbines of 25,000 h.p., which give them a speed of 21 knots. The main battery consists of ten 12-in. guns, 50 calibres (*i.e.*, 50 ft.) long, mounted in five twin turrets. Two of these turrets are in echelon amidships, the remaining three being on the centre line, an arrangement that permits all ten guns to come into action on either broadside through a limited arc.

In the class to which these ships belong the super-posed turret appeared for the first time in the British Navy. Sixteen 4-in. quick-firers and three submerged torpedo tubes complete



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



the armament. There is an 11-in. armour belt on the waterline, similar protection being given to the big guns. The fuel capacity is 2,700 tons. The complement numbers over 800 officers and men. These vessels cost about £1,700,000 apiece to complete.

ST. VINCENT CLASS.

(Completed 1910.)

ST. VINCENT. COLLINGWOOD.
VANGUARD.

These are Dreadnought battleships with a displacement of 19,250 tons. They are 500 ft. long, and have Parsons' turbines of 24,500 h.p., which give them a top speed of 21 knots. Their main battery comprises ten 12-in. guns of powerful type, mounted in five twin turrets, the disposition of which allows eight guns to be used on either beam. They also carry eighteen 4-in. quick-firers, some mounted on top of the turrets, and others in the superstructure. There are three submerged torpedo tubes.

The waterline is protected by armour barely 10-in. thick, this being also the thickness of the turret armour. Coal and oil to the amount of 2,700 tons can be carried. The complement of these battleships numbers rather more than 800 officers and men. They cost about £1,700,000 to build and complete.

BELLEROPHON CLASS.

(Completed 1909.)

BELLEROPHON. TEMERAIRE.
SUPERB.

These ships are some of our earliest Dreadnoughts. Their displacement is 18,900 tons, length 490 ft. Parsons' turbines of 23,000 h.p. propel them at a maximum speed of 21 knots, which they can maintain for several hours without difficulty. Ten 12-in. guns form the primary armament, which is mounted in five twin turrets, so disposed as to allow eight guns to fire on the broadside. They carry, further, sixteen 4-in. quick-firing guns to repel attack by torpedo craft, and there are three torpedo tubes below water.

On the waterline and the big-gun positions there is 11-in. armour. The maximum supply of coal and oil is 2,700 tons. The complement is 800 officers and men. These battleships cost about £1,700,000 to build and complete.

DREADNOUGHT.

(Completed 1906.)

This famous battleship was laid down at Portsmouth in October, 1905, and completed by December, 1906, and thus established a record for speedy construction. She was designed by a

committee of experts to meet the requirements of modern naval tactics, and with various modifications the main principles she embodied have since been almost universally adopted. She displaces 17,900 tons, and is 520 ft. long. Parsons' turbines of 23,000 h.p. give her a speed of 21 knots. She was the first battleship ever fitted with turbine machinery.

The armament consists of ten 12-in. guns, mounted in five twin turrets, which are so placed as to give a broadside fire of eight and an axial fire of six guns. For keeping off torpedo craft a battery of twenty-four 12-pounder quick-firers is provided. There are five submerged torpedo tubes. Waterline and vitals are protected by 11-in. armour, as also are the gun turrets. The ship has a great amount of internal protection against mine or torpedo explosion. She can carry 2,700 tons of coal. The complement numbers about 800 officers and men. This battleship cost upwards of £1,800,000 to build and equip.

LORD NELSON CLASS.

(Completed 1908–09.)

LORD NELSON. AGAMEMNON.

These battleships are sometimes called semi-Dreadnoughts, because they approximate to the Dreadnought type in tonnage and armament. The displacement is 16,500 tons, length 410 ft., and engines of 16,750 h.p., giving a speed of over 18 knots. Each of these vessels is armed with

four 12-in. and ten 9·2-in. breech-loading guns, all mounted in armoured turrets. The four 12-in. and eight of the 9·2-in. guns are in twin turrets, the other two 9·2-in. being in single turrets. The disposition of the armament is such that four 12-in. and five 9·2-in. can fire on each broadside. An outstanding defect is the smallness of the double 9·2-in. turrets, which hardly give elbow room to the crews and do not allow full advantage to be taken of the extraordinary rapidity with which the 9·2-in. piece can be worked when there is plenty of space.

On the whole, however, these ships are extremely powerful units. For driving off torpedo craft there are twenty-four 12-pounder quick-firers mounted in the superstructure. Five torpedo tubes are fitted. Armour protection consists of a 12-in. belt amidships, and there is similar plating on the 12-in. turrets, the smaller turrets having 8-in. armour. The fuel capacity is 2,500 tons. Each battleship carries 750 officers and men and cost £1,650,000 to build and complete.

BATTLE CRUISERS

TIGER.

(Completed 1914.)

The Tiger is the largest battle cruiser in the British Navy. She was built at Clydebank, and was approaching completion at the outbreak of war. The displacement is 28,000 tons, length 660 ft.,

and Parsons' turbines of 100,000 h.p. give a speed of at least 28 knots. Her armament comprises eight 13·5-in., twelve 6-in., and some smaller guns, with three torpedo tubes. The big guns are in double turrets on the centre-line, and all can be fired on either broadside. The 6-in. guns are mounted in an armoured battery.

For a battle cruiser this ship is heavily armoured. She has a belt at least 10 in. thick amidships, and the turrets are of equal thickness. She can store as much as 4,000 tons of coal and oil. The complement is about 1,100 officers and men. In appearance the "Tiger" is quite unlike other British battle cruisers. She has three equal-sized funnels and only one mast. Her total cost is understood to be not less than £2,200,000.

LION CLASS.

(Completed 1912-13.)

LION. PRINCESS ROYAL.

QUEEN MARY.

These battle cruisers displace 27,000 tons, are 660 ft. in length, and 88½ ft. broad. They have turbines of about 70,000 h.p., which enable them to steam at 28 knots, though this speed has been greatly exceeded in service. The main armament consists of ten 13·5-in. guns, discharging a projectile of 1,400 lb. weight, at the rate of two rounds per minute.

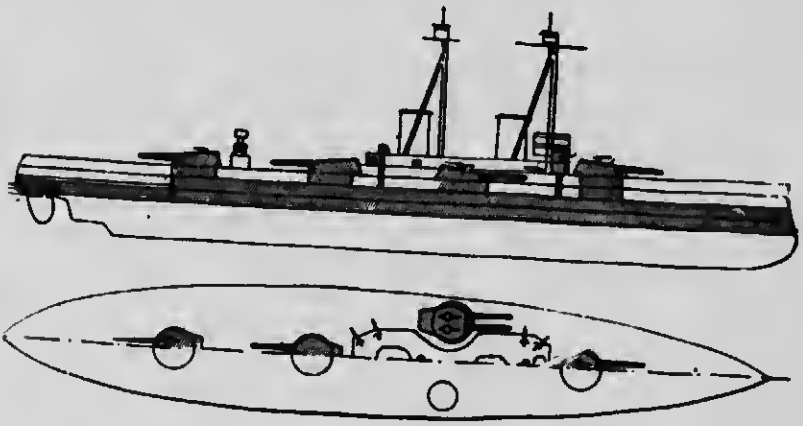
H.M.S. Bellerophon. *Photo: Symonds & Co.*

BELLEROPHON CLASS.

BELLEROPHON, TEMERAIRE, SUPERB.

Displacement: 18,000 tons.

Speed: 22 knots; Guns: 10 12in., 16 4in.;
Torpedo tubes: 3.



Astern fire:	Broadside:	Ahead fire:
6 12in.	8 12in.	6 12in.

These weapons are mounted in four double turrets on the centre-line, and can thus be fired on either broadside. Sixteen 4-in. quick-firers are carried for repelling torpedo attack. There are also two submerged torpedo tubes. The main armour belt is about 9 in. thick, with 10-in. plating on the turrets. The full fuel capacity is 3,000 tons, and the complement numbers 980 officers and men. These ships averaged £2,085,000 to build and complete.

INDEFATIGABLE CLASS.

(Completed 1911-13.)

INDEFATIGABLE. AUSTRALIA. NEW ZEALAND.

These vessels displace about 19,000 tons. They are 555 ft. in length, 80 ft. broad, and are designed for a speed of 25 knots, which was much exceeded during trials. The main armament consists of eight 12-in. guns, mounted in four double turrets, two being placed fore and aft, and two diagonally amidships, thus permitting all eight guns to be discharged on either broadside.

In addition there are sixteen 4-in. quick-firers mounted in the superstructure, and two submerged torpedo tubes. A 7-in. armour belt protects the waterline, the same thickness being on the turrets. The fuel capacity is 2,500 tons, including oil. A complement of 790 officers and men is carried. These ships cost about £1,500,000 each to build and complete.

INVINCIBLE CLASS.

(Completed 1908-09.)

INVINCIBLE. INFLEXIBLE.
INDOMITABLE.

The Invincible class were the first battle-cruisers to be built. The type is a cruiser edition of the Dreadnought, combining great offensive qualities with high speed. The displacement is 17,250 tons, length 530 ft., and the turbines of 41,000 h.p. are designed for a speed of 25 knots. In service, however, these vessels have steamed at more than 28 knots. They are armed with eight 12-in guns, mounted in four double turrets, one turret being placed at each end and the other two en echelon amidships.

This system enables all eight weapons to be fired on either broadside through a very limited arc. Sixteen 4-in. guns are mounted for repelling torpedo attack. The waterline and vital parts are protected by 7-in. armour, this being also the thickness of the turret plates. Coal to the amount of 2,500 tons can be carried. The complement is 780 officers and men. These vessels each cost over £1,700,000 to build and equip.

PRE-DREADNOUGHTS.

KING EDWARD CLASS.

(Completed 1904–06.)

KING EDWARD VII.	DOMINION.
	COMMONWEALTH.
ZEALANDIA.	HINDUSTAN.
BRITANNIA.	AFRICA.

HIBERNIA.

The King Edward class is considered to be the finest homogeneous group of pre-Dreadnought battleships in the world. The displacement is 16,350 tons, length 425 ft., and engines of 18,000 h.p. give a speed of over 19 knots. The armament consists of four 12-in., four 9·2-in., ten 6-in., twelve 12-pounder, and twelve 3-pounder guns, with four torpedo tubes.

All eight big guns are mounted in armoured turrets, the 6-in. weapons being in a box battery. Broadside fire is from four 12-in., two 9·2-in., and five 6-in. guns. A 9-in. armour belt protects vital parts. On the main turrets there is 12-in. plating, and the smaller guns also have good protection. The maximum coal supply is 2,200 tons. A complement of 820 officers and men is carried. These ships each cost about £1,450,000 to build and equip.

SWIFTSURE CLASS.

(Completed 1904.)

SWIFTSURE. TRIUMPH.

These battleships were built for the Chilian Government, but both were purchased by Great Britain before they were completed. The displacement is 11,980 tons, length 436 ft., and engines of 12,500 h.p. give a speed of 20 knots. For their size the armament of these vessels is most formidable. It comprises four 10-in., fourteen 7·5-in., and fourteen 14-pounder guns, with two torpedo tubes. The 10-in. weapons are in two twin turrets, the 7·5-in. guns being in an armoured battery.

The waterline and vital parts are protected by 7-in. of armour, which is increased to 10-in. on the turrets and there is 6-in. plating over the secondary battery. The coal supply is 2,000 tons. A complement of 700 officers and men is carried. The ships each cost £845,000 to build and complete. In all but very calm weather they lose much of their fighting value owing to the nearness of the 7·5-in. battery to the water, a position which makes it impossible to work these guns in a seaway. In other respects, too, the type is considered inferior to standard British design.

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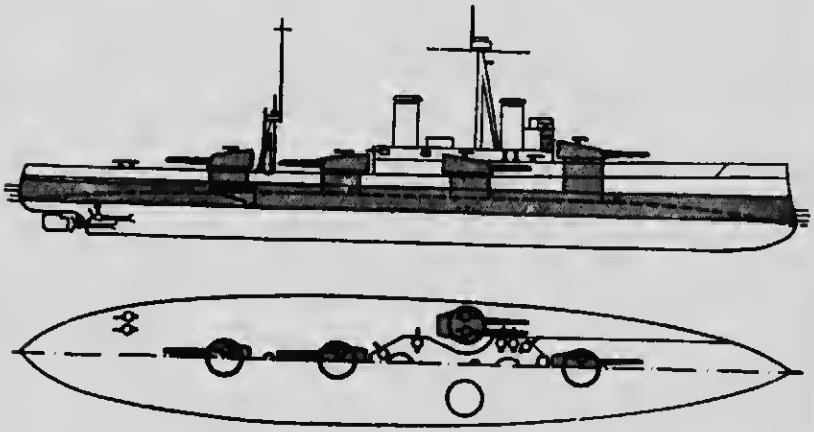
H.M.S. Dreadnought. *Photo: Sport & General.*

DREADNOUGHT.

Displacement: 17,900 tons.

Speed: 22 knots; Guns: 10 12in., 24 12pdrs.; Torpedo tubes: 5.



Astern fire:	Broadside:	Ahead fire:
6 12in.	8 12in.	6 12in.

DUNCAN CLASS.

(Completed 1903–04.)

DUNCAN. ALBEMARLE.

EXMOUTH. RUSSELL.

CORNWALLIS.

These are vessels of 14,000 tons displacement, 405 ft. in length, with engines of 18,000 h.p., and a speed of 20 knots. Their armament consists of four 12-in., twelve 6-in., and ten 12-pounder guns, with four submerged torpedo tubes. The 12-in. guns are in turrets, the 6-in. in casemates. Broadside fire is from four 12-in. and six 6-in. guns.

The class to which these ships belong was designed with a view to speed, to gain which sacrifices were necessary. Hence the armour protection is very light, the thickness of the belt being only 7-in. on the waterline. The turrets are of the same moderate thickness. The maximum fuel capacity is 2,000 tons. A complement of 750 officers and men is carried. The average cost was £1,000,000 to build and complete.

FORMIDABLE CLASS.

(Completed 1901–04.)

FORMIDABLE.	IRRESISTIBLE.
IMPLACABLE.	LONDON.
VENERABLE.	BULWARK.
PRINCE OF WALES	QUEEN.

This class displaces 15,000 tons, is 400 ft. long, and has engines of 15,000 h.p., giving a speed of about 18½ knots. It is armed with four 12-in., twelve 6-in., and sixteen 12-pounder guns, with four submerged torpedo tubes. The waterline is armoured with 9-in., the turrets with 12-in. plates, and there is 6-in. armour on the casemates containing the secondary guns. The full coal capacity is 2,100 tons. These ships carry 780 officers and men. They cost more than £1,000,000 to build and equip.

CANOPUS CLASS.

(Completed 1900–02.)

CANOPUS.	OCEAN.
GOLIATH.	GLORY.
VENGEANCE.	ALBION.

These ships belong to a class of old pre-Dreadnoughts which are rapidly losing their fighting value. They displace 12,950 tons, are 390 ft. long,

and have engines of 13,500 h.p., which give a speed of nearly 19 knots. The armament comprises four 12-in., twelve 6-in., and ten 12-pounder guns, all of obsolescent pattern. There are four torpedo tubes. A belt only 6-in. thick protects the waterline, but there is 12-in. armour on the gun turrets. Coal to the amount of 1,750 tons can be carried. The complement numbers 750 officers and men. These ships cost about £850,000 each. They were designed with very light draught to enable them to navigate the Suez Canal. They are still comparatively fast steamers.

MAJESTIC CLASS.

(Completed 1895-98.)

MAGNIFICENT.	JUPITER.
MAJESTIC.	CÆSAR.
VICTORIOUS.	MARS.
PRINCE GEORGE.	HANNIBAL.

ILLUSTRIOUS.

The Majestic class is the oldest group of battleships in the Navy. The displacement is 14,900 tons, length 390 ft. and engines of 12,000 h.p. give them a maximum speed of 17½ knots. They are armed with four 12-in., twelve 6-in., and sixteen 12-pounder guns of old type, with five torpedo tubes. The armour belt is 9-in. amidships, and there is 14-in. armour on the

big gun turrets. Coal to the amount of 1,900 tons can be stowed. A complement of 750 officers and men is carried. The ships cost slightly more than £900,000 each to build and complete.

ARMOURED CRUISERS

MINOTAUR CLASS.

(Completed 1908.)

MINOTAUR. SHANNON.
DEFENCE.

These vessels are armoured cruisers of 14,600 tons, 490 ft. in length, and have engines of 27,000 h.p., giving a speed of 23 knots. They carry a very powerful armament, consisting of four 9.2-in., ten 7.5-in., and sixteen 12-pounder guns. The 9.2-in. and 7.5-in. guns are in armoured turrets, the four first named being mounted in pairs, the 7.5 in. singly.

Protection is afforded by a 6-in. belt amidships, with 8-in. armour on the 9.2-in. turrets, and 6-in. armour on the smaller turrets. The maximum coal supply is 2,250 tons. A complement of about 800 officers and men is borne. These ships cost more than £1,400,000 each to build and complete.

WARRIOR CLASS.

(Completed 1906-07.)

WARRIOR.	NATAL.
ACHILLES.	COCHRANE.

These are armoured cruisers of 13,550 tons. They are 480 ft. in length, and have engines of 23,000 h.p., giving a speed of 23 knots. The armament consists of six 9·2-in. and four 7·5-in. guns, all mounted in single turrets, and so disposed that six heavy guns bear on each broadside. There are, besides, twenty-four 3-pounder quick-firers for use against torpedo-craft, and three submerged torpedo tubes. The armour belt and turrets are 6 in. thick. The maximum coal capacity is 2,000 tons, and a complement of over 700 officers and men is carried. Each vessel cost about £1,200,000 to build and complete.

BLACK PRINCE CLASS.

(Completed 1906.)

BLACK PRINCE.	DUKE OF EDINBURGH.

These armoured cruisers have a displacement of 13,550 tons, are 480 ft. long, and have engines of 23,000 h.p., giving a speed of 23·3 knots. They are armed with six 9·2-in., ten 6-in., and twenty 3-pounder guns, with three torpedo

tubes. The big guns are mounted in single turrets, the 6-in. weapons being in an armoured battery.

Owing to the low freeboard of these ships, their 6-in. guns are too near the water to be worked in rough weather. They are protected on the waterline by a 6-in. armour belt, with similar plating on the gun turrets and battery. The full coal capacity is 2,000 tons. These cruisers carry 700 officers and men. They cost nearly £1,200,000 to build and complete.

DEVONSHIRE CLASS.

(Completed 1905-06.)

ANTRIM.	DEVONSHIRE.
CARNARVON.	ROXBURGH.
HAMPSHIRE.	ARGYLL.

Armoured cruisers displacing 10,850 tons, 450 ft. in length, with engines of 20,500 h.p., giving a speed of 22.3 knots. The armament is weak for vessels of this size, and consists only of four 7.5-in. and six 6-in. guns, with twenty small quick-firers and two torpedo tubes.

The 7.5-in. guns are mounted in turrets, the 6-in. weapons in casemates. There is a 6-in. belt amidships, and 6-in. plating on the turrets and casemates. The maximum coal capacity is 1,800 tons. A complement of 655 officers and men is carried. The average cost, complete, of these ships was nearly £900,000.

"COUNTY" CLASS.

(Completed 1903-04.)

KENT.	DONEGAL.
ESSEX.	LANCASTER.
MONMOUTH.	CORNWALL.
BERWICK.	CUMBERLAND.

SUFFOLK.

The displacement of this class is 9,800 tons. They are 440 ft. in length, and have engines of 22,000 h.p., which drive them at a speed of 23 knots. The armament consists of fourteen 6-in., eight 12-pounder, and three smaller quick-firing guns. Four of the 6-in. weapons are mounted in twin turrets placed at the bow and stern, the remainder being in casemates. There are two torpedo tubes.

Protection is very light throughout, there being only a 4-in. belt amidships, with 5-in. armour on the turrets. The full coal supply is 1,600 tons. A complement of 540 officers and men is carried. Each ship cost complete about £750,000.

DRAKE CLASS.

(Completed 1902-03.)

DRAKE.	GOOD HOPE.
LEVIATHAN.	KING ALFRED.

These vessels are among the best of the older armoured cruisers. Each displaces 14,100 tons,

is 500 ft. long, and has engines of 30,000 h.p., giving a speed of 23 knots. On trial and in service this speed has been much exceeded, and the ships can still steam at 24 knots. They are armed with two 9·2-in. breech-loaders, sixteen 6-in., and twelve 12-pounder quick-firing guns.

The big weapons are in single turrets, one placed at each end of the ship, the 6-in. guns being mounted in casemates. Two torpedo tubes are fitted. The armour protection on the turrets, casemates, and belt has a uniform thickness of 6-in. Coal to the amount of 2,500 tons is stored in the bunkers. The complement consists of 900 officers and men. These cruisers averaged about one million sterling complete.

CRESSY CLASS.

(Completed 1901-04.)

CRESSY.	HOGUE.
SUTLEJ.	BACCHANTE.
ABOUKIR.	EURYALUS.

The Cressy group are the oldest class of armoured cruisers on the active list. They displace 12,000 tons, are 440 ft. in length, and have engines of 21,000 h.p., producing a speed of 21 knots, which was exceeded on trial by one knot. The armament comprises two 9·2-in. breech-loaders, twelve 6-in., and twelve 12-pounder quick-firing guns, with two torpedo tubes.

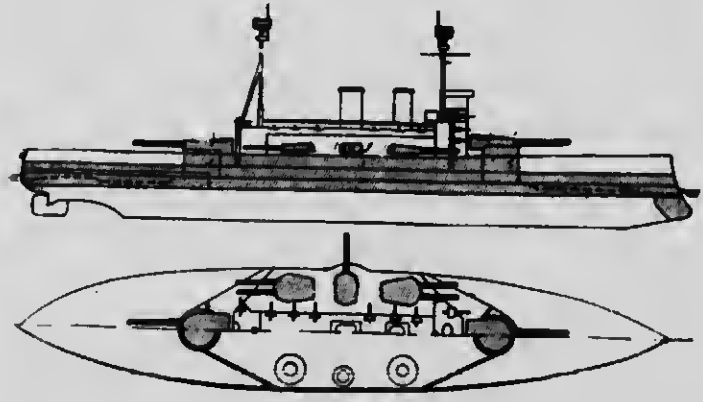
H.M.S. Agamemnon. *Photo: Cribb, Southsea.*

AGAMEMNON CLASS.

AGAMEMNON AND LORD NELSON.

Displacement: 16,500 tons.

Speed: 18½ knots; Guns: 4 12in., 10 9.2in.; Torpedo tubes: 5.



Astern fire:	Broadside:	Ahead fire:
2 12in.	4 12in.	2 12in.
4 9.2in.	5 9.2in.	4 9.2in.

The big guns are mounted in single turrets fore and aft, the 6-in. weapons in casemates. There is a 6-in. belt amidships, armour of the same thickness on the turrets, and 5-in. plating on the casemates. The coal bunkers can store 1,600 tons. A complement of 7[illegible] officers and men is carried. The cost of this class when complete averaged £750,000.

ARETHUSA CLASS.

(Completed 1914.)

ARETHUSA.	PENELOPE.
AURORA.	PHAETON.
GALATEA.	ROYALIST.
INCONSTANT.	UNDAUNTED.

These are the light armoured cruisers which Mr. Churchill has described as "destroyers of destroyers." They displace 3,600 tons, are 410 ft. long, and have turbines of 37,000 h.p., giving a speed of 30 knots. The armament consists of two 6-in., six 4-in., and four machine guns, with four torpedo tubes.

There is a belt of 3-in. armour amidships, with 3½-in. plating above this. The boilers are fired entirely by oil fuel, of which about 750 tons are carried. The complement numbers about 270 officers and men. The cost of this class has not yet been made public.

PROTECTED CRUISERS

(With protective decks instead of armoured belts.)

EDGAR CLASS.

(Completed 1893–94.)

EDGAR.	ENDYMION.
HAWKE.	GRAFTON.
THESEUS.	GIBRALTAR.

These vessels are the oldest cruisers we possess, displacing 7,350 tons, and having a speed of 19½ knots. They are armed with two 9.2-in., ten 6-in., and seventeen smaller guns, with two torpedo tubes. Coal capacity, 1,250 tons. Complement, 544 officers and men. Cost over £400,000.

ROYAL ARTHUR CLASS.

(Completed 1893–94.)

ROYAL ARTHUR. CRESCENT.

This class displaces 7,700 tons, and has a speed of 19½ knots. The armament is one 9.2-in., twelve 6-in., and seventeen smaller guns, with two torpedo tubes. There is a steel deck over engines and boilers. Coal capacity, 1,250 tons. Complement, 560 officers and men. Cost, about £400,000.

TERRIBLE

(Completed 1898.)

This is the largest protected cruiser in the British Navy. She displaces 14,200 tons, and can steam at 22 knots. Her armament consists of two 9.2-in., sixteen 6-in., and many smaller guns, with four torpedo tubes. Over engines and boilers there is a steel deck 6-in. thick. Coal capacity, 3,000 tons. Complement, 840 officers and men. Cost complete, £708,000.

DIADEM CLASS.

(Completed 1899–1902.)

DIADEM.	EUROPA.
NIOBE.	ANDROMEDA.
AMPHITRITE.	ARGONAUT.
ARIADNE.	SPARTIATE.

Protected crusiers of 11,000 tons and 20½ knots speed, armed with sixteen 6-in. and twelve 12-pounder quick-firing guns, with two torpedo tubes. Engines and boilers are protected by a 4-in. steel deck. Coal capacity, 2,000 tons. Complement, 677 officers and men. Cost, about £550,000. The Niobe is now a unit of the Canadian Navy.

MELBOURNE CLASS

(Completed 1913.)

MELBOURNE. SYDNEY.

These are protected cruisers belonging to the Australian Navy. They displace 5,600 tons, are 430 ft. long, and have a speed of 25½ knots. The armament consists of eight 6-in. and some small quick-firers, with two submerged torpedo tubes.

The coal capacity is 1,000 tons. A complement of 400 officers and men is carried. They each cost complete about £350,000.

NOTTINGHAM CLASS.

(Completed 1914.)

NOTTINGHAM. BIRMINGHAM.

LOWESTOFT.

Three of our latest light cruisers. They are of 5,440 tons, with turbines of 22,000 h.p., giving a speed of 25½ knots. The armament is nine 6-in. and four small quick-firers, with two submerged torpedo tubes. There is a thin armour belt on the waterline. Coal capacity, 1,000 tons. The complement is 400 officers and men.

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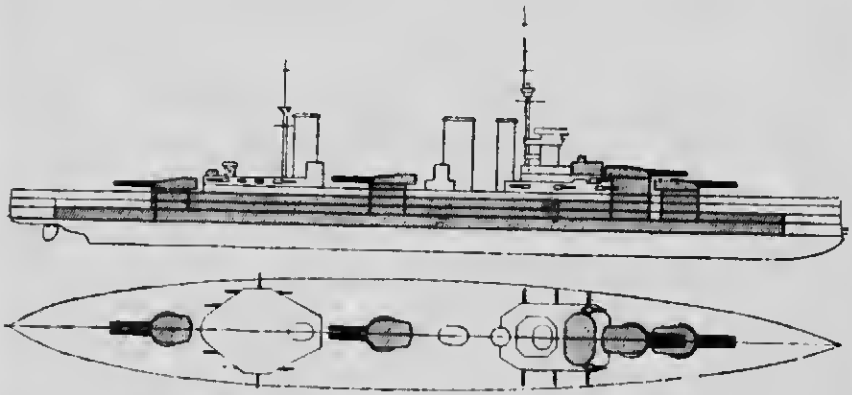
LION CLASS.

LION, PRINCESS ROYAL.

Displacement: 26,350 tons.

Speed: 28 knots; Guns: 8 13.5in., 16 4in.;
Torpedo tubes: 3.



Astern fire:	Broadside:	Ahead fire:
2 13.5in.	8 13.5in.	4 13.5in.

CHATHAM CLASS

(Completed 1912–13.)

SOUTHAMPTON. DUBLIN.

CHATHAM.

These vessels are light cruisers of 5,400 tons, with turbines of 22,000 h.p., and a speed of 25½ knots. They carry an armament of eight 6-in. and four small quick-firers, with two torpedo tubes submerged. Coal capacity, 1,000 tons. Complement, 400 officers and men. Cost complete, about £350,000.

FALMOUTH CLASS.

(Completed 1911–12.)

FALMOUTH. DARTMOUTH.

WEYMOUTH. YARMOUTH.

Light cruisers displacing 5,250 tons, driven by turbines of 22,000 h.p. at a speed of 24¾ knots. They are armed with eight 6-in. and four small quick-firers, and two submerged torpedo tubes. The coal capacity is 1,000 tons. Complement, 390 officers and men. Cost complete, about £335,000.

BRISTOL CLASS.

(Completed 1910.)

GLASGOW. GLOUCESTER.

LIVERPOOL. NEWCASTLE.

BRISTOL.

These vessels are light cruisers of 4,800 tons, propelled by turbines of 22,000 h.p., at a speed of 25 knots. The armament is two 6-in., ten 4-in., and some small quick-firers, with two submerged torpedo tubes. Coal capacity, 850 tons. Complement, 375 officers and men. Cost complete, over £350,000.

ACTIVE CLASS.

(Completed 1911–12.)

ACTIVE. FEARLESS.

These vessels belong to the Scout category, and displace 3,440 tons. Their turbines of 18,000 h.p. give a speed of 25 knots, but this is often exceeded. They are armed with ten 4-in. and four smaller quick-firers, and have two deck torpedo tubes. Coal capacity, 600 tons. Complement, 320 officers and men. They averaged complete about £270,000. The ill-fated Amphion was a sister-ship.

BLANCHE CLASS.

(Completed 1910–11)

BLANCHE. BLONDE.

Light cruisers of the Scout type. They displace 3,350 tons, and have turbines of 18,000 h.p., giving a speed of 25 knots. The armament is ten 4-in. and four 3-pounder quick-firers, with two torpedo tubes mounted on deck. Coa capacity, 600 tons. Complement, 285 officers and men. Cost complete, about £275,000.

BOADICEA CLASS.

(Completed 1909–10.)

BELLONA. BOADICEA.

Light cruisers of the Scout type, displacing 3,300 tons, and having a speed of 25 knots. which is frequently exceeded by two knots. Armament: Six 4-in. four 3-pounder quick-firing guns, two deck torpedo tubes. Coal capacity, 600 tons. Complement, 263 officers and men. Cost complete, £330,000.

SENTINEL CLASS.

(Completed 1905-06.)

ADVENTURE.	PATHFINDER.
ATTENTIVE.	PATROL.
FORESIGHT.	SENTINEL.
FORWARD.	SKIRMISHER.

These vessels were the first fleet scouts. They are of about 3,000 tons displacement, and have engines of 16,500 h.p., which give them a speed of 25 knots. As originally armed, they carried a battery of 12-pounders, but these were replaced recently by nine 4-in. quick-firers, a change which much increased the fighting value. The coal supply is 400 tons, and they have a complement of 268 officers and men. The average cost, complete, was over £270,000.

"GEM" CLASS

(Completed 1905.)

AMETHYST.	DIAMOND.
TOPAZE.	SAPPHIRE.

Light cruisers of 3,000 tons, with a speed of 22 knots. Armed with twelve 4-in. and some smaller quick-firing guns, with two torpedo tubes on deck. The coal supply is 500 tons, the complement 296 officers and men, and the average cost, complete, was about £235,000.

CHALLENGER CLASS.

(Completed 1904-06.)

CHALLENGER.

ENCOUNTER (Australian Navy).

These vessels are protected cruisers of 5,880 tons, capable of steaming 21 knots. The armament consists of eleven 6-in. and some smaller quick-firing guns. Over the engines and boilers there is a 3-in. steel protective deck. The coal capacity is 1,225 tons, the complement 454 officers and men, and they averaged, complete, £360,000.

HIGHFLYER CLASS

(Completed 1900-01.)

HERMES. HIGHFLYER.

HYACINTH.

These protected cruisers displace 5,600 tons. They have a speed of 20 knots, and are armed with eleven 6-in., several smaller quick-firing guns, and two torpedo tubes. The coal capacity is 1,100 tons. They carry a complement of 456 officers and men, and each ship cost, complete, over £280,000.

PELORUS CLASS

(Completed 1897-1901.)

PROSERPINE.	PERSEUS.
PELORUS.	PROMETHEUS.
PEGASUS.	PSYCHE.
PYRAMUS.	PIONEER.

PANDORA.

The displacement of this class is about 2,200 tons, speed 20 knots, and the armament consists of eight 4-in. and some smaller quick-firing guns, with two torpedo tubes mounted on deck, The coal capacity is 520 tons. They have a complement of 234 officers and men, and each vessel cost complete, about £150,000.

ARROGANT CLASS.

(Completed 1898-99.)

FURIOUS.	VINDICTIVE.

Protected cruisers of 5,750 tons and 19 knots speed, armed with ten 6-in. and some smaller quick-firing guns, and two torpedo tubes. Coal capacity is 1,175 tons. The complement consists of 429 officers and men. Each cost complete, over £280,000.

TALBOT CLASS.

(Completed 1897-98.)

ECLIPSE.	JUNO.
MINERVA.	VENUS.
TALBOT.	ISIS.
DIANA.	DIDO.

DORIS.

These vessels are protected cruisers of 5,600 tons, with a speed of 19½ knots. They are armed with eleven 6-in. and some smaller guns, and have two torpedo tubes. The coal capacity is 1,050 tons, and the complement 416 officers and men. Each cost complete about £275,000.

ASTRÆA CLASS.

(Completed 1894-95.)

ASTRÆA.	FLORA.
CAMBRIAN.	FOX.
CHARYBDIS.	HERMIONE.

The displacement of these cruisers is 4,360 tons. They have a speed of 19½ knots, and are armed with two 6-in., eight 4.7-in., and some smaller guns. The coal capacity is 1,000 tons. A complement of 312 officers and men is carried. They averaged complete about £225,000.

SAPPHO CLASS.

(Completed 1893.)

SAPPHO.

A light cruiser of 1,400 tons displacement, with a speed of 19½ knots. She is armed with two 6-in., eight 4.7-in., and some smaller guns, and has four torpedo tubes. The coal supply is 1,000 tons. Her complement is 273 officers and men. She cost complete £176,000.

ÆOLUS CLASS.

(Completed 1892-93.)

ÆOLUS.	SIRIUS.
RAINBOW (Canadian Navy).	MELPOMENE.
	BRILLIANT.

These light cruisers displace 3,600 tons, and have a speed of 20 knots. They are armed with two 6-in., six 4.7-in., and some smaller guns, besides four torpedo tubes. The coal capacity is 535 tons. The complement is 273 officers and men.

PEARL CLASS.

(Completed 1892.)

PHILOMEL.

A light cruiser of 2,575 tons, with a speed of 19 knots. Armament: Eight 4.7-in., and thirteen smaller guns. Two torpedo tubes. Coal capacity 440 tons. The complement is 217 officers and men, and the ship cost complete about £164,000. She is the only vessel of the Pearl Class remaining on the active list.

MEDEA CLASS.

(Completed 1889.)

MEDEA.

This is the oldest light cruiser on the active list. She displaces 2,800 tons, has a speed of 19 knots, and is armed with six 4.7-in., and fourteen smaller guns, besides four torpedo tubes. The coal capacity is 400 tons. The complement is about 200 officers and men.

DESTROYERS.

"L" CLASS.

(Completed 1914.)

LLEWELLYN.	LAERTES.
LENNOX.	LYSANDER.
LOYAL.	LANCE.
LEGION.	LOOKOUT.
LAFOREY.	LAUREL.
LAWFORD.	LIBERTY.
LOUIS.	LARK.
LYDIARD.	LANDRAIL.
LEONIDAS.	LAVEROCK.
LUCIFER.	LINNET.

These are among the very latest destroyers. They were launched in 1913, and have a displacement of 965 tons. The designed speed is 29 knots, which was exceeded on trial. They consume oil fuel only. The armament consists of three 4-in. guns and four torpedo tubes, and they carry 100 officers and men.

"K" CLASS.

(Completed 1913.)

ACASTA.	PORPOISE.
ACHATES.	UNITY.
AMBUSCADE.	VICTOR.
ARDENT.	LYNX.
FORTUNE.	MIDGE.
CHRISTOPHER.	OWL.
COCKATRICE.	SHARK.
CONTEST.	SPARROWHAWK.
GARLAND.	SPITFIRE.
PARAGON.	HARDY.

These destroyers were built under the 1911 programme. The displacement is 935 tons, and they can steam at more than 30 knots. The armament is three 4-in. guns and two torpedo tubes. Oil fuel only is consumed. The complement is 100 officers and men.

"I" CLASS.

(Completed 1911-12.)

LURCHER.	HORNET.
FIREDRAKE.	HYDRA.
OAK.	DEFENDER.
BADGER.	DRUID.
BEAVER.	JACKAL.
ACHERON.	TIGRESS.
ARIEL.	LAPWING.
ARCHER.	LIZARD.
ATTACK.	SANDFLY.
GOSHAWK.	PHŒNIX.
HIND.	FERRET.

FORESTER.

Ocean-going destroyers of about 700 tons, with a speed of more than 30 knots. The armament consists of two 4-in. and two 12-pounder guns, with two torpedo tubes. Oil only is consumed. The complement is seventy-two officers and men. These boats were built under the 1910 programme.

"H" CLASS.

(Completed 1910-11.)

ACORN.	MARTIN.
ALARM.	MINSTREL.
BRISK.	NEMESIS.
CAMELEON.	NEREIDE.
COMET.	NYMPHE.
FURY.	REDPOLE.
GOLDFINCH.	RIFLEMAN.
HOPE.	RUBY.
LARNE.	SHELDRAKE.
LYRA.	STAUNCH.

These destroyers were built under the 1909 programme. Their displacement is 760 tons, the designed speed 27 knots. The armament is two 4-in. and two 12-pounder guns, with two torpedo tubes. Oil only is consumed. The complement is 76 officers and men.

"G" CLASS.

(Completed 1910.)

BASILISK.	PINCHER.
BEAGLE.	RACOON.
BULLDOG.	RATTLESNAKE.
FOXHOUND.	RENARD.
GRASSHOPPER.	SAVAGE.
HARPY.	SCORPION.
MOSQUITO.	SCOURGE.
GRAMPUS.	WOLVERINE.

These destroyers, which were built under the 1908 programme, have a displacement of 976

tons and a speed of 27 knots. They are armed with one 4-in. and three 12-pounder guns, and two torpedo tubes. The complement is 96 officers and men.

"F" CLASS.

(Completed 1908–9.)

AFRIDI. MOHAWK.

COSSACK. TARTAR.

GHURKA.

These are ocean-going destroyers, displacing about 880 tons, with a speed of more than 33 knots. They are armed with five 12-pounder guns and two torpedo tubes. Oil only is consumed in the furnaces. Complement, 60 officers and men.

"F" CLASS.

(Continued.)

SARACEN. NUBIAN.

AMAZON.

These destroyers are of 975 tons displacement, and have a speed of more than 33 knots. The armament is two 4-in. guns and two torpedo tubes. Oil only is consumed. The complement is 67 officers and men.

"F" CLASS.

(Continued.)

CRUSADER. ZULU.

MAORI.

Ocean-going destroyers of more than 1,000 tons displacement, with a speed of nearly 34 knots. They burn oil fuel only. Armed with two 4-in. guns and two torpedo tubes. Complement, 71 officers and men.

"F" CLASS.

(Continued.)

VIKING.

An ocean-going destroyer of 1,090 tons and a speed of 34 knots. She is armed with two 4-in. guns and two torpedo tubes. Oil only is burned. The complement is 71 officers and men.

SWIFT.

(Completed 1908.)

This is the largest destroyer in the British Navy, and also the fastest. She displaces 2,170 tons, and is designed for a speed of 36 knots, but is said to have done as much as 39 knots in service. The armament is four 4-in. guns and two torpedo tubes. She is officially classed as a flotilla leader.

"E" CLASS.

(Completed 1902–5.)

ARUN.	KENNET.
BOYNE.	LIFFEY.
CHELMER.	MOY.
CHERWELL.	NESS.
COLNE.	NITH.
DEE.	OUSE.
DERWENT.	RIBBLE.
DOON.	ROTHER.
EDEN.	STOUR.
ERNE.	SWALE.
ETTRICK.	TEST.
EXE.	TEVIOT.
FOYLE.	URE.
GARRY.	USK.
ITCHEN.	WAVENEY.
JED.	WEAR.
KALE.	WELLAND.

These destroyers comprise the "River" class. They displace about 550 tons, have a speed of 25½ knots, and are armed with four 12-pounder guns and two torpedo tubes. The complement is 72 officers and men.

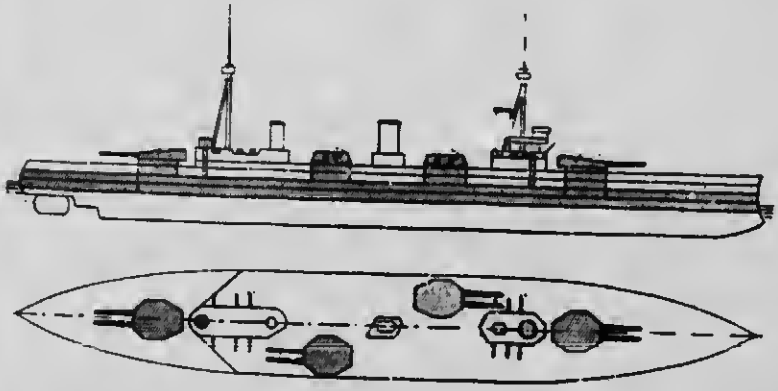
H.M.S. Indefatigable. *Photo: Cribb, Southsea.*

INDEFATIGABLE CLASS.

INDEFATIGABLE, AUSTRALIA,
NEW ZEALAND.

Displacement: 18,750 tons.

Speed: 28 knots; Guns: 8 12in., 16 4in.;
Torpedo tubes: 3.



Astern fire:
6 12in.

Broadside:
8 12in.

Ahead fire:
6 12in.

"D" CLASS.

(Completed 1897–1900.)

ANGLER.	DESPERATE.
COQUETTE.	FAME.
CYGNET.	MALLARD.
CYNTHIA.	STAG.

These boats represent the older type of destroyers. They displace more than 300 tons, have a speed of 30 knots, and are armed with one 12-pounder, five smaller guns, and two torpedo tubes. The complement is 60 officers and men.

"C" CLASS.

(Completed 1897–98.)

ALBATROSS.	KESTREL.
AVON.	LEOPARD.
BAT.	LEVEN.
BITTERN.	MERMAID.
BRAZEN.	OSPREY.
BULLFINCH.	OSTRICH.
CHEERFUL.	RACEHORSE.
CRANE.	RECRUIT.
DOVE.	ROEBUCK.
ELECTRA.	STAR.
FAIRY.	SYLVIA.
FALCON.	THORN.
FAWN.	VELOX.
FLIRT.	VIGILANT.
FLYING FISH.	VIOLET.
GIPSY.	VIXEN.
GREYHOUND.	VULTURE.

A comparatively old group of destroyers of 30 knots speed. Armed with one 12-pounder,

five smaller guns, and two torpedo tubes. The complement is about 60 officers and men.

"B" CLASS.

(Completed 1895–1900.)

ALBACORE.	PANTHER.
ARAB.	PETEREL.
BONETTA.	QUAIL.
EARNEST.	SEAL.
EXPRESS.	SPITEFUL.
GRIFFON.	SPRIGHTLY.
KANGAROO.	SUCCESS.
LIVELY.	SYREN.
LOCUST.	THRASHER.
MYRMIDON.	WOLF.

ORWELL.

An early class of destroyer, with a speed of 30 knots. Armament: one 12-pounder, five 6-pounder guns, two torpedo tubes. Complement: about 60 officers and men.

"A" CLASS.

(1894–5.)

CONFLICT.	RANGER.
FERVENT.	SUNFISH.
LIGHTNING.	SURLY.
OPOSSUM.	ZEPHYR.

PORCUPINE.

These are our oldest destroyers, having been launched nearly twenty years ago. The speed is 27 knots. Armament: one 12-pounder, five smaller guns, two torpedo tubes. Complement, 50 officers and men.

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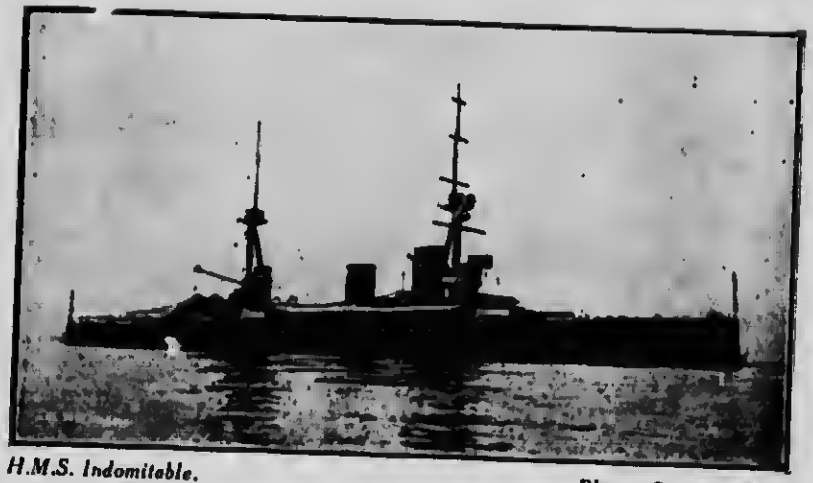


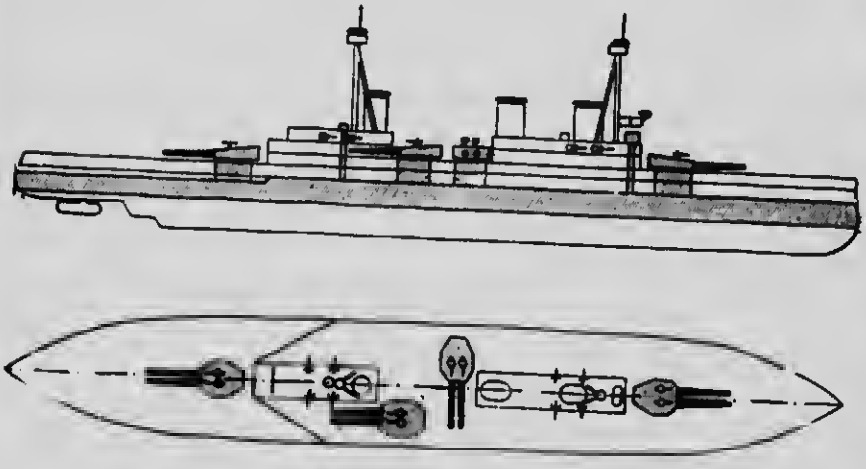
H.M.S. Indomitable. *Photo: Symonds & Co.*

INDOMITABLE CLASS.

INDOMITABLE, INFLEXIBLE, INVINCIBLE.

Displacement: 17,250 tons.

Speed: 28 knots; Guns: 8 12in., 16 4in.;
Torpedo tubes: 3.



Astern fire:
6 12in.

Broadside:
8 12in.

Ahead fire:
6 12in.

FLOTILLA LEADERS.

(Completed 1914.)

KEMPENFELT. NIMROD.

These two large destroyers were ordered by the Chilian Government from Messrs. White & Co., and purchased by the British Admiralty on the outbreak of war. The displacement is 1,850 tons, speed more than 31 knots, and the armament consists of six 4-in. quick-firers, two Maxims, and three torpedo tubes. The complement is about 110 officers and men.

SUBMARINES

"A" CLASS.—These submarines are the oldest in commission. The displacement is 204 tons, and on the surface they can travel at 12 knots, below water at 9 knots. They are armed with two torpedo tubes. Complement: 11 officers and men.

"B" CLASS.—These boats displace 314 tons, and have a surface and submerged speed of 13 and 9 knots respectively. They are armed with two torpedo tubes. Sixteen officers and men are carried.

"C" CLASS.—This class has a displacement of about 320 tons. Above water their speed is 14 knots, below it is 10 knots. They are fitted with two torpedo tubes, and have a crew of 16 officers and men.

"D" CLASS.—These are fairly new boats of about 550 tons displacement. On the surface the speed is 16 knots, below water it is 10 knots. They are armed with three torpedo tubes, and are also believed to have a quick-firing gun. The complement is about 20 officers and men.

"E" CLASS.

The "E" class comprises our latest boats, and no official details of the class have been published. The displacement, however, is about 800 tons, and the surface speed 16 knots. There are four torpedo tubes and two quick-firing guns, the latter being on disappearing mountings. About 25 officers and men are carried.

A.E. 1 and A.E. 2.

(Australian boats.)

These boats are identical with the "E" class.

NAUTILUS. "F" CLASS.

SWORDFISH.

These boats, although not officially described, are known to be of extremely powerful type. They displace nearly 1,000 tons, can travel at 18 or 19 knots on the surface and 12 below, and are armed with six torpedo tubes and two guns. The complement is about 27 officers and men.

CHAPTER III

The German Navy

GERMAN BATTLESHIPS.

DREADNOUGHTS.

KÖNIG CLASS.

(Completed 1914–15.)

GROSSER KRONPRINZ.
KURFURST. MARKGRAF.
KÖNIG.

The "König" class, to which these vessels belong, are the last battleships to carry the 12-in. gun, as the battleships laid down since are to be armed with 15-in. weapons. The "Königs" are considered by German experts to be very successful ships. The displacement is 25,500 tons, the length on the water-line 574 ft., and the engines are intended to develop 28,000 s.h.p. = 20½ knots.

The normal coal supply is 1,000 tons, but, if necessary, no fewer than 3,600 tons of fuel, including oil, can be carried. Ten 12-in. guns, 50 cals. long, represent the main armament. They are mounted in five twin turrets, all on the centre line, so arranged that four guns can fire ahead or astern, and all ten on either broadside. Fourteen 5.9-in. quick-firing guns are

mounted in an armoured broadside battery, seven being available on either beam.

There are also ten 21-pounder quick-firers for repelling torpedo attack. Five submerged torpedo tubes, to discharge the 19¾-in. torpedo, are fitted.

These ships are strongly armoured, having a belt 13¾ in. thick amidships, with good protection to guns and main fighting stations. The last vessel of this class, the "Kronprinz," is not expected to be ready before next year.

The complement numbers 1,130.

KAISER CLASS.

(Completed 1912–13.)

KAISER.
FRIEDRICH DER GROSSE.
PRINZREGENT LUITPOLD.
KÖNIG ALBERT.
KAISERIN.

In design the ships of this class are very similar to our "Neptune" class, but are much larger, the displacement being 24,300 tons. The designed speed is 20½ knots, but some ships of the class did much better than this on trial, one of them, the "Kaiser," steaming at 23½ knots for a short period. These were the first German battleships to be fitted with turbines,

The armament consists of ten 12-in. guns, fourteen 5.9-in., and twelve 21-pounder quick-firers, with five submerged torpedo tubes. The big guns are twin-mounted in five turrets, two

of which are placed diagonally amidships, whilst the other three turrets are on the centre line. By this means all the big guns can be trained on either broadside, through a fairly wide arc. Stern fire is nominally from eight, bow fire from six guns. The 5.9-in. quick-firers are in an armoured battery.

A feature of this class is the very strong armour belt, which is 13¾ in. over vital parts amidships. Each ship carries 1,080 officers and men, but the Friedrich der Grosse, which is the flagship of the commander-in-chief, has a complement of more than 1,100.

Two vessels of this class, "Kaiser" and "König Albert," recently completed an ocean cruise of 20,000 miles, and are said to have proved excellent sea boats. Their maximum fuel capacity is 3,600 tons.

HELGOLAND CLASS.

(Completed 1911–12.)

HELGOLAND.	THÜRINGEN.
OSTFRIESLAND.	OLDENBURG.

The "Helgoland" class, to which these vessels belong, represents the second group of German Dreadnoughts. They are undoubtedly powerful units, but the design has been sharply criticised in Germany. Displacing 22,440 tons, and with a designed speed of twenty knots, which has been slightly exceeded in service, this class is armed with twelve 12-in., fourteen 5.9-in.,

fourteen 21-pounders, and six submerged torpedo tubes.

The big guns are in twin turrets, of which four are placed on the broadside, and two on the centre-line. This disposition allows only eight guns to be trained on either beam; in other words, only 66 per cent. of the heavy armament is available on the broadside. The designers have explained this apparent defect by pointing out that if the ship were attacked on both sides simultaneously it could reply effectively on each broadside. Nevertheless, this system was not approved by German experts, and was subsequently abandoned in favour of a turret disposition which permits the free use of all big guns on each beam, as in the "Kaiser" and "König" classes,

The "Helgolands" have 11¾-in. armour on the water-line. They are very steady in rough weather, and all have done well at gunnery. The maximum coal supply is 3,000 tons. A complement of 1,106 officers and men is carried.

NASSAU CLASS.

(Completed 1909–10.)

NASSAU.	RHEINLAND.
WESTFALEN.	POSEN.

The "Nassau" class, to which these vessels belong, were the first Dreadnoughts to be built by Germany. For their size they have an extremely powerful armament, but too much was

obviously attempted on the displacement, and they are admittedly failures.

These ships displace 18,600 tons. They have exceeded their designed speed of nineteen knots by more than one knot.

The armament comprises twelve 11-in., twelve 5.9-in., sixteen 21-pounders, and six submerged torpedo tubes. Owing to the disposition of the four broadside turrets only eight of the big guns can be used on one broadside, so that the ships, in spite of their more numerous armament, can train only the same number of heavy guns on the beam as the British Dreadnought. So much room is taken up by the gun positions and their magazines, &c., that space between decks is very limited, and the officers and men can scarcely be accommodated.

Over vital parts of the hull there is 11¼-in. armour, but the turrets have much thinner protection. It is held by experts that these ships would be quickly put out of action if subjected to heavy fire, and it is considered doubtful whether they would be able to stand for long the concussion of their own numerous heavy guns.

The complement is 966 officers and men. The full coal capacity is 2,700 tons.

BATTLE-CRUISERS.

DERFFLINGER.

(Completed 1914.)

The "Derfflinger" is Germany's newest battle-cruiser. Laid down at the end of 1911 at Hamburg, she was intended to be launched on June 14th last year, but, owing to a mishap to the slipway, she did not go afloat until a fortnight later.

She was performing her trials when war broke out, but was then no doubt hurriedly completed and placed in commission. Her displacement is 26,200 tons, and she has a length on the waterline of 689-ft., with a maximum breadth of 95-ft.

High speed and great fuel endurance are the outstanding features of this ship, which in proportion to her size is by no means heavily armed. The main battery consists of eight 12-in. guns in four double turrets, all on the centre line. Twelve 5·9-in. quick-firers represent the secondary battery, and twelve 21-pounders the anti-torpedo armament. There are in addition some special anti-aerocraft guns. Four submerged torpedo tubes are fitted.

The maximum thickness of the armour belt is 12-in., but great attention has been paid to the protection of the guns and other important positions, The fuel capacity reaches the enormous figure of 4,300 tons, which includes about

1,000 tons of oil. The turbines are of a new pattern, designed to work up to 63,000 shaft horse-power, giving a speed of 26½ knots; but there is every reason to suppose this figure will be exceeded in service.

A peculiarity is the straight stem, no ram being fitted. The appearance of this huge vessel is strikingly formidable, and she is undoubtedly a most valuable addition to the German cruiser squadron, though in armament she is outclassed by contemporary British battle-cruisers. Complement, 1,125 officers and men.

SEYDLITZ.

(Completed 1913.)

The battle-cruiser Seydlitz is in a class by herself, though her design closely resembles that of the Moltke and the Goeben, of which she is a slightly larger edition. Her displacement is 24,600 tons, length 656 ft., and she has Parsons' turbines of 63,000 h.p., designed for a speed of 26½ knots, though she is reported to have attained over twenty-eight knots on trial.

She was built at the Blohm and Voss yard, Hamburg, and was commissioned last year. Her armament comprises ten 11-in., twelve 5·9-in., and twelve 21-pounder guns, with four submerged torpedo tubes. The big guns, mounted in double turrets, are so disposed that all can be fired on either broadside, whilst eight can be trained astern and six ahead.

On the waterline amidships there is a 12-in. armour belt. The gun positions are also well protected. The maximum fuel capacity is 3,350 tons, equivalent to a steaming radius of 12,000 miles at moderate speed.

This ship, however, is a notorious "coal-eater," and consumes an enormous amount of fuel when running at high speed.

Her complement numbers 1,108 officers and men.

MOLTKE CLASS.

MOLTKE, GOEBEN.

(Completed 1911–12.)

These ships displace 22,640 tons, the length on water line is 610 ft., and the extreme breadth 96½ ft. They are propelled by Parsons' turbines, of 52,000 h.p., designed to give a speed of twenty-five knots, but on trial the maximum speed was slightly over twenty-eight knots, and since being in service these two battle-cruisers are said to have proved themselves to be the fastest armoured vessels in the German fleet. The fuel capacity is over 3,000 tons, and at economical speed the vessels can cover 12,000 miles without replenishing their bunkers.

The armament is fairly powerful. It consists of ten 11-in., twelve 5·9-in., and twelve 21-pounder guns, with four submerged torpedo tubes. Two turrets amidships are en echelon,

the remaining three being on the centre line, so that all ten big guns can be fired on either broadside. These ships are reported to have special arrangements for rapidly loading the heavy guns, but the report is not authenticated.

For battle-cruisers the protection is remarkably good, there being 11-in. armour on the waterline. In every respect these vessels are among the most powerful units of the German fleet.

They have a complement of 1,013 officers and men.

VON DER TANN.

(Completed 1910.)

The Von der Tann was the first battle-cruiser built by Germany. She was launched in 1909 and commissioned in the following year. The design of the British Invincible was closely followed, but certain improvements were introduced.

On a displacement of 19,100 tons there is carried an armament of eight 11-in. and ten 5·9-in guns, with sixteen 21-pounders for repelling torpedo attack. Four submerged torpedo tubes are fitted. The vessel has a length of 560 ft. She is equipped with Parsons' turbines of 43,600 h.p., designed for a speed of twenty-five knots. On trial she touched twenty-eight knots, and has done even better than this since.

The four double turrets are so disposed that all eight guns are available on either broadside through a very wide arc. The vitals of the ship are protected by an armour belt 9¾-in. thick. She can carry 2,600 tons of fuel, which enables her to steam about 11,000 miles at economical speed.

Her complement numbers 911 officers and men. The Von der Tann flies the flag of Rear-Admiral Tapken, Junior Admiral of the Scouting Squadron.

PRE-DREADNOUGHTS.

DEUTSCHLAND CLASS.

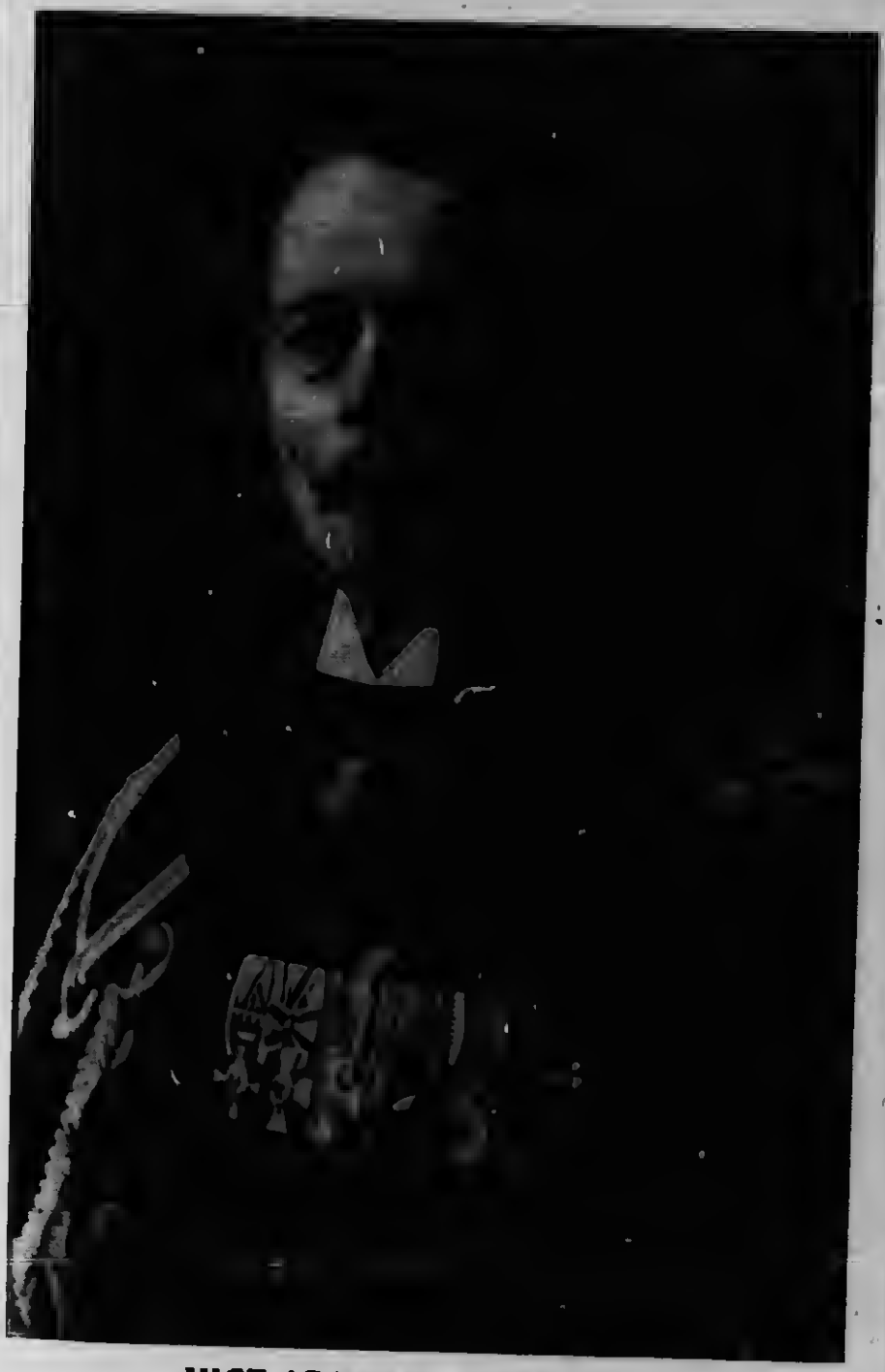
(1906-08.)

DEUTSCHLAND. SCHLESIEN.

POMMERN. HANNOVER.

SCHLESWIG-HOLSTEIN.

The main characteristics of the "Deutschland" class, to which these vessels belong, are as follow: Displacement, 13,000 tons; speed, 19½ knots; armament, four 11-in., fourteen 6.7-in., twenty 21-pounder guns, and six submerged torpedo tubes. The armour belt is 9¾ in. at its thickest, with 11-in. armour on the turrets. The 6.7-in. guns are in a broadside battery, protected by 6¾-in. plates.



VICE-ADMIRAL INGENOHL.
Commander-in-Chief, German High Seas Fleet.

These are popular ships in the German navy, owing to their handiness, good speed, and sea-keeping qualities. The armament is not so formidable as it looks, owing to the slow rate of fire from the secondary battery. The 6.7-in. projectile weighs 154lbs, and is thus too heavy to be handled by manual power, a fact which takes this gun out of the quick-firing category.

In fighting value the ships compare with our Formidables. The coal supply is limited to 1,750 tons. The complement is 743 officers and men. The "Deutschland" was for some years flagship of the High Sea Fleet.

BRAUNSCHWEIG CLASS.

(Completed 1904–06.)

BRAUNSCHWEIG. HESSEN.
ELSASS. LOTHRINGEN.
PREUSSEN.

The same in every respect as the "Deutschland" class, except that the armour belt is only 9-in. thick.

WITTELSBACH CLASS.

(Completed 1902–03.)

WITTELSBACH. SCHWABEN.
WETTIN. MECKLENBURG.
ZHARINGEN.

The "Wittelsbach" class, to which these vessels belong, has the following characteristics: Displacement, 11,643 tons; speed 18 knots; armament, four 9.4-in.. eighteen 5.9-in., twelve

21-pounders, and six submerged torpedo tubes. Amidships there is a belt of 9-in. armour, with 10-in. plating on the big-gun turrets.

Although the heavy guns are too weak for modern tactics, the exceptionally powerful secondary battery was considered to compensate for this defect. To older ships of the pre-Dreadnought period the "Wittelsbach" class might still prove formidable opponents.

In service they have been found defective in sea-keeping qualities, and the high freeboard and lofty superstructure offer an inviting target to hostile guns.

Normally these ships form part of the reserve fleet. Proposals to reconstruct and modernise them two years ago were rejected, on the ground of their insignificant fighting value.

The coal supply is 1,800 tons. A complement of 683 officers and men is borne.

KAISER FRIEDRICH CLASS.

(Completed 1898-1901.)

KAISER FRIEDRICH III.	KAISER KARL DER GROSSE.
KAISER WILHELM II.	KAISER BARBAROSSA.

KAISER WILHELM DER GROSSE.

Particulars of the Kaiser Friedrich class, of which these ships are representatives, are as follows: Displacement, 10,600 tons; speed, 17 knots; armament, four 9·4-in., fourteen 5·9-in.,

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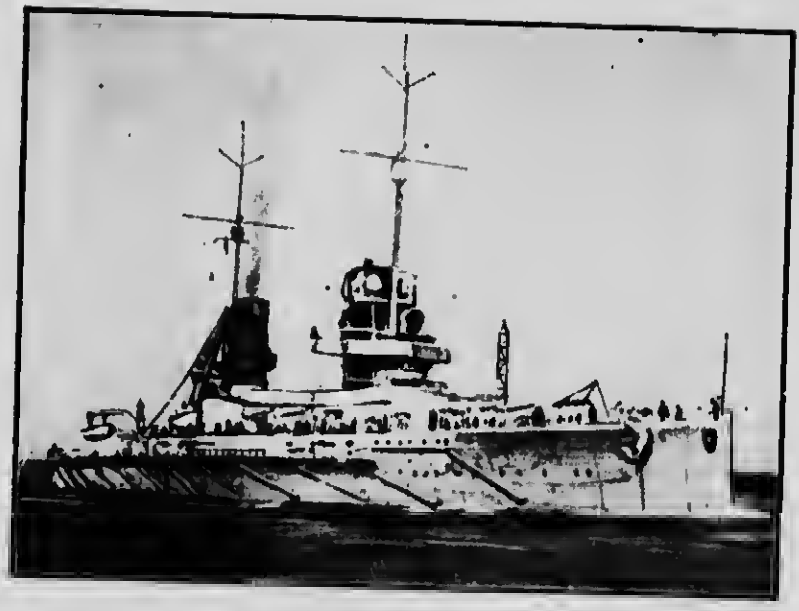
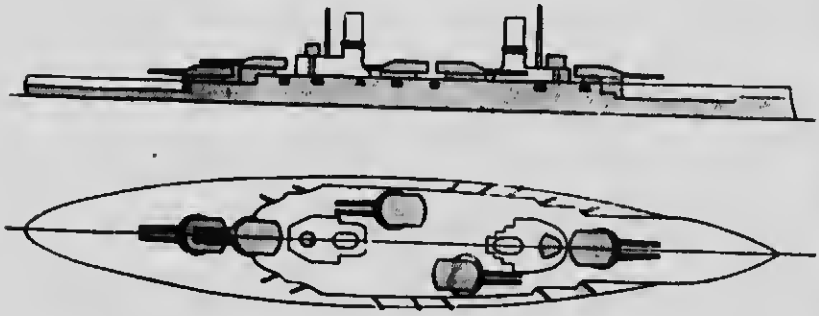


KAISER CLASS.

KAISER, FRIEDRICH DER GROSSE, KAISERIN, PRINZREG-LUITPOLD, KONIG ALBERT.

Displacement: 24,200 tons.

Speed: 21 knots; Guns: 10 12.2in, 14 6in., 12 24pdrs.; Torpedo tubes: 5.



Astern fire:	Broadside:	Ahead fire:
8 12.2in.	10 12.2in.	6 12.2in.
4 6in.	7 6in.	4 6in.

fourteen 21-pounder guns and five submerged torpedo tubes. Protection is afforded by a narrow belt 12-in. thick amidships, which tapers to 4-in. at the bows. The stern has no side armour.

In their original form each ship carried eighteen 5·9-in. guns, but all, excepting the Kaiser Karl der Grosse, underwent complete reconstruction six or seven years ago, when four 5·9-in. guns and much of the clumsy top-hamper were removed. This reduction in weight brought the lower edge of the armour belt dangerously near the surface, with the result that when the ships are rolling the belt comes out of the water, and the lower hull is thus exposed to the smallest projectile.

Owing to this grave defect the ships were withdrawn from active service, and have been in reserve ever since they were reconstructed.

Maximum coal capacity is 1,000 tons. The complement numbers 622 officers and men.

BRANDENBURG CLASS.

(Completed 1893–94.)

BRANDENBURG. WÖRTH.

These vessels are the two oldest battleships in the German navy. The class consisted originally of four ships, but two of them (Kurfürst Friedrich Wilhelm and Weissenburg) were sold to

Turkey in 1910, and are now included in the Turkish fleet as the Haireddin Barbarossa and Torgut Reis. The displacement is 9,870 tons, the present speed about 16 knots.

Six 11-in. guns of obsolete type form the main armament, which is mounted in three double turrets on the centre line. This disposition enables all six heavy guns to fire on either beam. There are also eight 4·1-in. and eight 21-pounder guns, with two submerged and one above-water torpedo tubes.

On the water-line amidships is a 16-in. belt of compound armour, and the big gun positions are protected by 12-in. plating. About 1,050 tons of coal can be stored. The complement is 585 officers and men. The fighting value of this class under modern conditions is practically nil.

COAST DEFENCE SHIPS.

(Completed 1890–7.)

AEGIR	ODIN.
HAGEN.	HEIMDALL.
HILDEBRAND.	FRITHJOF.
BEOWULF.	SIEGFRIED.

These vessels comprise the very oldest class of German armoured ships, and are used only

for the local defence of harbours and coasts. The displacement is 4,000 tons. The speed originally was 15 knots, but is now considerably less.

The armament consists of three old 9·4-in. and ten 21-pounder guns, with four torpedo tubes. A narrow belt of 9-in. armour protects the waterline, but elsewhere the hull has very little protection.

The complement numbers 307 officers and men.

GERMAN ARMOURED CRUISERS.

BLÜCHER.

(Completed 1909.)

The "Blücher" is the most modern of Germany's armoured cruisers, as distinct from the battle-cruiser class. She was laid down in 1906, at Kiel, as a "reply" to the British "Invincibles," then building.

At that date the details of the new British ships were carefully guarded, with the result that the Germans, acting on incorrect information, designed a cruiser which was far behind the "Invincible" in every respect. The Blücher displaces 15,550 tons, and is 527-ft. in length.

She has reciprocating engines of 32,000 h.p., for a designed speed of 24 knots, which was increased to 25·8 knots on trial.

The armament consists of twelve 8·2-in., eight 5·9-in., and sixteen 21-pounder guns, with four submerged torpedo tubes. The 8·2-in. guns are

twin-mounted in armoured turrets, so arranged that eight of these weapons bear on the broadside. The 5·9-in. guns are in an armoured battery.

A 7-in. belt protects the waterline and vitals, and there is plating of equal thickness on the turrets. The coal supply is 2,200 tons.

The complement numbers 888 officers and men. The "Blücher," which until lately was used for gunnery training purposes, is the only German warship to be fitted with a tripod mast and a fire-control station on the British pattern.

SCHARNHORST. GNEISENAU.

(Completed 1907–08.)

Both these armoured cruisers were launched in 1906. They displace 11,400 tons, and are 470-ft. in length. With engines designed for 28,000 h.p., the trial speed was 23 knots. The armament is very powerful for a ship of this class, and consists of eight 8·2-in., six 5·9-in., and eighteen 21-pounder guns, with four submerged torpedo tubes.

Four of the big guns are mounted in twin turrets, the remaining four in broadside casemates. Six of these weapons can be fired on either broadside. The 5·9-in. guns are in an armoured battery.

Six-inch armour protects the waterline and vital parts, the same thickness being on the main gun positions. The maximum coal supply is 2,000 tons.

A complement of 764 officers and men is carried.

The "Scharnhorst" flies the flag of the admiral in command of the cruiser squadron in China, and the "Gneisenau" is also a unit of the China squadron.

YORCK. ROON.

(Completed 1905.)

The principal details of these ships are: Displacement, 9,350 tons; length, 417-ft.; designed h.p., 19,000; speed, 21 knots. Armament consists of four 8·2-in., ten 5·9-in., and fourteen 21-pounder guns, with four submerged torpedo tubes. The 8·2-in. guns are mounted in two double turrets placed forward and aft, the 5·9-in. being in an armoured battery.

Protection is very poor. At its thickest the belt is only 4 ins., but there is 6-in. armour on the turrets. The general design of these ships is faulty, and they have not proved successful in service. The maximum coal capacity is 1,400 tons.

A complement of 633 officers and men is carried.

PRINZ ADALBERT. FRIEDRICH KARL.

(Completed 1903.)

These are vessels of 8,850 tons displacement, and 410-ft. in length. They have engines of 17,000 h.p., giving a speed of 21 knots. Their armament comprises four 8·2-in. guns in twin

turrets, ten 5·9-in., and twelve 21-pounder quick-firers, with four torpedo tubes. The armour belt is only 4 ins. thick, but the two turrets are protected by 6-in. armour.

Coal capacity is 1,600 tons with bunkers full. A complement of 591 officers and men is borne.

PRINZ HEINRICH.

(Completed 1902.)

This vessel is one of the earliest German armoured cruisers. She was built specially for service abroad, and was formerly on the China station. She displaces 8,760 tons, is 410-ft. in length, and originally steamed at 20½ knots, but is now considerably slower.

Her armament consists of two 9·4-in., ten 5·9-in., and ten 21-pounder guns, with four torpedo tubes, three of them submerged. The big guns are in single turrets placed at each end, whilst the secondary armament is mounted partly in small turrets, and partly in battery.

There is only a 4-in. belt on the waterline, with 6-in. plating on the heavy turrets. The full fuel supply is 1,450 tons. Her complement numbers 567 officers and men.

FÜRST BISMARCK.

(Completed 1900.)

This is the oldest armoured cruiser in service. She is at present being converted into a torpedo

training ship, and may not have her full armament on board. The displacement is 10,750 tons, length 411-ft., speed 19 knots. She carries four 9·4-in., twelve 5·9-in., ten 21-pounders, and six torpedo tubes. The big guns are in two twin turrets. An 8-in. belt protects the waterline, and the main gun positions have plating of equal thickness. This vessel was completed in 1900, having taken more than four years to build. Her present fighting value is small. The complement is 594 officers and men.

PROTECTED CRUISERS.

KAISERIN AUGUSTA.

(Completed 1893.)

This is the oldest German protected cruiser in service. Launched in 1892, she has a displacement of 5,900 tons, and a speed of 20 knots. She is armed with twelve 5·9-in. quick-firing guns, and eight 21-pounders, with three torpedo tubes. There is a thick steel deck, which extends from bow to stern. The complement is 439 officers and men.

VICTORIA LUISE. HANSA.
HERTHA. FREYA.
VINETA.

(Completed 1898–99.)

These are vessels of 5,600 tons displacement, and belong to the training squadron for cadets

and boys. They can steam at about 19 knots, but the small coal capacity of 900 tons limits their radius of action. The armament consists of two 8·2-in. guns in single armoured turrets, six 5·9-in., and fourteen 21-pounder quick-firers with three torpedo tubes.

Amidships there is a 4-in. protective deck, and armour of the same thickness protects the guns. A complement of 465 officers and men is carried.

GEFION.

(Completed 1894.)

This is a protected cruiser of 3,700 tons, with a speed of about 19 knots, armed with ten 4.1-in. and six smaller quick-firers. There are no torpedo tubes. A complement of 296 officers and men is carried.

HELA.

(Completed 1896.)

The "Hela" is a small cruiser of 2,000 tons, with a nominal speed of 20 knots. She is armed with two 21-pounder and four smaller guns, and has three torpedo tubes. There is a steel deck over boilers and machinery. The complement is 191 officers and men.

GAZELLE. NIOBE.

(Completed 1898–1901.)

These vessels were the first fast light cruisers which Germany has built in such numbers during

recent years. The displacement is 2,600 tons, and the present speed about 20½ knots. They are armed with ten 4.1-in. quick-firing guns and two submerged torpedo tubes. With coal bunkers full the steaming radius at moderate speed is 4,000 knots. A 2-in. steel deck protects boilers and engines from shell fire. Complement: 270 officers and men.

NYMPHE.	MEDUSA.
THETIS.	FRAUENLOB.
ARIADNE.	UNDINE.
AMAZONE.	ARKONA*

* Fitted as a mine-layer.)

(Completed 1901-03.)

These ships are protected cruisers of 2,620 tons, with a speed of about 21½ knots. Armament: Ten 4.1-in quick-firers and two torpedo tubes. There is a 2-in. curved deck over boilers and machinery spaces. With a full coal supply on board, these cruisers have a steaming radius at low speed of slightly more than 4,000 knots. The complement numbers 275 officers and men.

HAMBURG.	MÜNCHEN.
BREMEN.	LÜBECK.
BERLIN.	LEIPZIG.

DANZIG.

(Completed 1904-06.)

These are protected cruisers of 3,200 tons, with a speed of over 22 knots. They are armed with

ten 4.1-in. guns and two torpedo tubes. Starting with coal bunkers full, they are capable of steaming 5,000 knots at low speed without re-coaling. A complement of 303 officers and men is carried.

KŒNIGSBERG.

(Completed 1907.)

A protected cruiser of 3,350 tons, with a maximum speed of 24 knots. She was launched in 1905. Armed with ten 4.1-in. quick-firing guns and two torpedo tubes. The radius of action at low speed is 5,000 knots. Complement: 322 officers and men.

STUTTGART. NURNBERG. STETTIN.

(Completed 1908.)

Protected cruisers of 3,350 tons, which are able to travel at nearly 25 knots. They are armed with ten 4·1-in. quick-firing guns and two torpedo tubes. The steaming radius at economical speed is 5,500 knots. Complement, 322 officers and men.

DRESDEN. EMDEN.

(Completed 1907-08.)

Protected cruisers of 3,540 tons, with a maximum speed of 24½ knots. The armament consists of ten 4.1-in. quick-firing guns and two torpedo tubes. The steaming radius at low speed is

about 5,800 knots. Complement, 361 officers and men.

KOLBERG.	AUGSBURG.
MAINZ.	CÖLN.

(Completed 1909-11.)

Protected cruisers of 4,280 tons, turbine driven, with a trial speed of nearly 27 knots. They are armed with twelve 4.1-in. quick-firing guns and two torpedo tubes. Their radius of action with bunkers full is nearly 6,000 knots. The complements consists of 379 officers and men.

MAGDEBURG.	STRASSBURG.
BRESLAU.	STRALSUND.

(Completed 1912.)

Fast cruisers of 4,478 tons, able to steam at nearly 28 knots. They are armed with twelve 4.1-in. quick-firing guns and two torpedo tubes. On the water-line there is 4-in. vertical armour, so that these vessels are, strictly speaking, armoured cruisers. They have a large coal supply, and can cover more than 6,000 knots without taking in fresh fuel. Complement: 370 officers and men.

ROSTOCK.	GRAUDENZ.
KARLSRUHE.	REGENSBURG.

(Completed 1913-14.)

These are the very latest fast light cruisers. They have a maximum speed of 28 knots. The

armament is twelve 4.1-in. quick-firing guns and two torpedo tubes. At the water-line there is an armour belt 4-in. thick, and much internal protection. The radius of action at economical speed is 6,500 knots. A complement of 373 officers and men is carried.

GUNBOATS.

CONDOR.	SEEADLER.
CORMORAN.	GEIER.

(Completed 1892-95.)

Gunboats of 1,600 tons, having a speed of 15 knots. They are armed with eight 4.1-in. quick-firing guns and two torpedo tubes. Complement: 162 officers and men.

ILTIS.	TIGER.
JAGUAR.	LUCHS.

(Completed 1898-00.)

Gunboats of 880 tons, with a speed of about 14 knots, and armed with small quick-firing guns. The complement numbers 126 officers and men.

PANTHER	EBER

(Completed 1902–3.)

Gunboats of 900 tons and 14 knots speed. They carry two 4.1-in. and some smaller guns. Complement: 130 officers and men.

TORPEDO-BOAT DESTROYERS.

G 37—42. V 43—48.

Launched 1914. Displacement 650 tons, speed 32½ knots. Armament: Five torpedo tubes, two 21-pounder quick-firers, and four machine guns. Complement, 73.

V 29—30. S 34—36.

Launched 1913. Displacement 650 tons, speed 32½ knots. Armament: Five torpedo tubes, two 21-pounder quick-firers, and four machine guns. Complement, 73.

V 25—28. S 21—33.

Launched 1913. Displacement 620 tons, speed 32½ knots. Armament: Five torpedo tubes, two 21-pounder quick-firers, and four machine guns. Complement, 73.

S 13—24. G 7—12. V 1—6.

Launched 1912. Displacement 550 tons, speed 32½ knots. Armament: Five torpedo tubes, two 21-pounder quick-firers, and two machine guns. Complement, 73.

G 192—197. V 186—191.

Launched 1910. Displacement 645 tons, speed 32½ knots. Armament: Four torpedo tubes, two 21-pounder quick-firers, and two machine guns. Complement, 83.

V 180—185. S 176—179.

Launched 1909. Displacement 630 tons, speed 32 knots. Armament: Four torpedo

tubes, two 21-pounder quick-firers, and two machine guns. Complement, 83.

G 174—175.

Launched 1910. Displacement 645 tons, speed 31½ knots. Armament: Four torpedo tubes, two 21-pounder quick-firers, and two machine guns. Complement, 83.

G 169, 170, 172, 173.

Launched 1908. Displacement 628 tons, speed 30 knots, Armament: Three torpedo tubes, two 21-pounder quick-firers, and two machine guns. Complement, 83.

S 165—168.

Launched 1908. Displacement 600 tons, speed 32 knots. Armament: Three torpedo tubes, two 21-pounder quick-firers, and two machine guns. Complement, 83.

V 162—164.

Launched 1909. Displacement 600 tons, Speed 30 knots. Armament: Three torpedo tubes, two 21-pounder quick-firers, two machine guns. Complement, 83.

V 150—161.

Launched 1907. Displacement 545 tons, speed 30 knots. Armament: Three torpedo tubes, two 21-pounder quick-firers, and two machine guns. Complement, 83.

S 138—149.

Launched 1906. Displacement 515 tons, speed 30 knots. Armament: Three torpedo tubes, one 21-pounder quick-firer, three 4- pounder

quick-firers, and two machine guns. Complement, 80.

G 137.

Launched 1906. Displacement 565 tons, speed 30 knots. Armament: Three torpedo tubes, one 21-pounder quick-firer, three 4-pounder quick-firers, and two machine guns. Complement, 80.

G 136.

Launched 1906. Displacement 480 tons, speed 27 knots. Armament: Three torpedo tubes, four 4-pounder quick-firers, and two machine guns. Complement, 68.

G 135.

Launched 1906. Displacement 480 tons, speed 27 knots. Armament: Three torpedo tubes, one 24-pounder quick-firer, two 4-pounder quick-firers, and two machine guns. Complement, 68.

G 132—134.

Launched 1906. Displacement 480 tons, speed 27 knots. Armament: Three torpedo tubes, four 4-pounder quick-firers, and two machine guns. Complement, 68.

S 125—131.

Launched 1904. Displacement 480 tons, speed 27 knots. Armament: Three torpedo tubes, three 4-pounder quick-firers, and two machine guns. Complement, 60.

S 120—124.

Launched 1904. Displacement 460 tons, speed 27 knots. Armament: Three torpedo

tubes, three 4-pounder quick-firers, and two machine guns. Complement, 60.

S 114—119.

Launched 1903. Displacement 415 tons, speed 26 knots. Armament: Three torpedo tubes, three 4-pounder quick-firers, and two machine guns. Complement, 56.

G 108—113. S 90—101.

S 102—107.

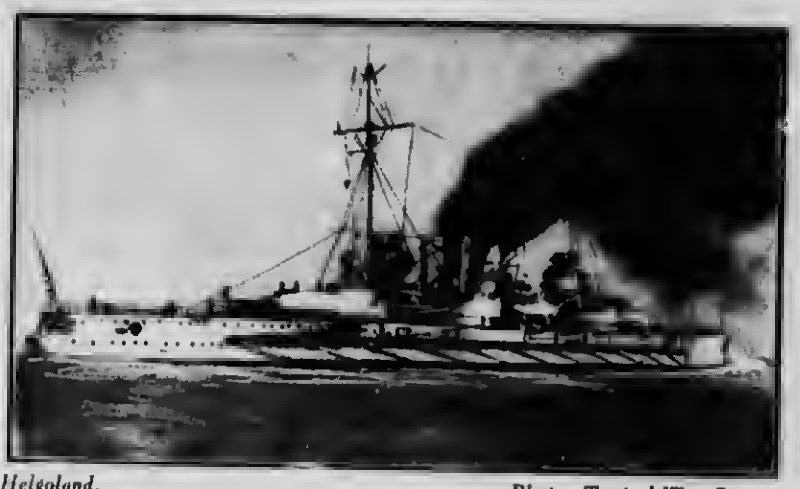
Destroyers of 400 tons, launched in 1901. The maximum speed is 26 knots. Armament: Three small quick-firers, two machine guns, three torpedo tubes. The complement is 56 officers and men.

TAKU.—This is a destroyer of 280 tons and 30 knots speed. She carries three small guns, and two torpedo tubes. Complement: 49 officers and men. She was captured from the Chinese during the Boxer campaign.

D 10.—A destroyer of 350 tons and 28 knots speed, armed with five small guns, two machine guns, and two torpedo tubes. Complement, 60 officers and men.

D 9.—An old destroyer of 375 tons and 24 knots speed. She carries three small guns, two Maxims, and three torpedo tubes. Complement, 49 officers and men.

D 3—8.—Very old destroyers, of more than 300 tons displacement and about 22 knots speed. They carry some small guns and three torpedo tubes. Complement, 49 officers and men.



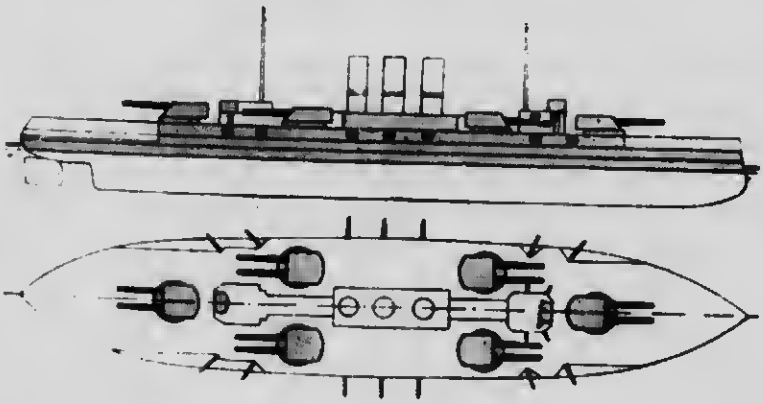
Helgoland. *Photo: Topical War Service.*

HELGOLAND CLASS.

HELGOLAND, OSTFRIESLAND, THURINGEN, OLDENBURG.

Displacement: 21,000 tons.

Speed: 21 knots; Guns: 12 12.2in., 14 6in., 14 24pdrs.; Torpedo tubes: 6.



Astern fire:	Broadside:	Ahead fire:
6 12.2in.	8 12.2in.	6 12.2in.
4 6in.	7 6in.	4 6in.

D 1 (CARMEN).

D 2 (ALICE ROOSEVELT).

Very old destroyers, displacing 225 tons, with a speed of 21 knots. Armament: five small guns and three torpedo-tubes. Complement, 46.

SUBMARINES.

U 1—2.—These are the earliest German submarines, and displace about 150 to 200 tons. The speed above water does not exceed 9 knots, and two torpedo-tubes are carried. There is a crew of 11.

U 3—8.—These boats belong to the second German type. The displacement is about 250 tons, and the surface and submerged speeds are 12 and 8 knots respectively. Three torpedo-tubes are fitted. Complement, 14 officers and men.

U 9—20.—These boats are believed to be of about 400 tons, with a surface speed of 15 knots, and to be armed with three or four torpedo-tubes. The crew consists of 17 officers and men.

U 21—26.—These submarines displace about 800 tons, and are said to be able to travel at 18 knots on the surface. They are armed with four torpedo-tubes and two small quick-firing guns. The complement is about 22 officers and men.

U 27—36.—These boats are the very latest type. The displacement is about 900 tons, the

surface speed 18 knots, and they can travel at 12 knots when submerged. The armament consists of four torpedo-tubes and two quick-firing guns on high-angle mountings. About 30 officers and men are carried.

MINE-LAYERS.

PELIKAN.—This is the oldest German mine-layer in commission. She was launched in 1890, displaces 2,300 tons, and can steam at 15½ knots. The armament consists of four 21-pounder quick-firing guns, and, of course, a large number of mines charged with high explosives. She is used as a sea-going training ship for mine work. The complement is 195 officers and men.

NAUTILUS.—This ship was specially built for mine-laying work, and was launched in 1906. Her displacement is 1,935 tons, the designed speed 20 knots. She carries eight 21-pounder guns, and has magazines for a large number of naval mines, with special gear for dropping them. Her crew numbers 198 officers and men.

ALBATROSS.—This ship, which was specially built for mine-laying work, was launched in 1907. The displacement is 2,185 tons, the designed speed 20 knots. She is armed with eight 21-pounder quick-firers, and has magazines for a large number of naval mines, with special gear for dropping them. The crew numbers 198 officers and men.

CHAPTER IV

Admiral Sir John Jellicoe

Immediately the Home Fleets had been mobilised the Admiralty issued the following announcement:

> With the approval of his Majesty the King, Admiral Sir John R. Jellicoe, K.C.B., K.C.V.O., has assumed supreme command of the Home Fleets, with the acting rank of Admiral, and Rear-Admiral Charles E. Madden, C.V.O., has been appointed to be his Chief of the Staff.

His Majesty immediately sent an inspiring message to Admiral Sir John Jellicoe, as representing the whole Navy, and it was communicated to the officers and men of the squadrons in all parts of the world.

> At this grave moment in our National history I send to you, and through you to the officers and men of the Fleets of which you have assumed command, the assurance of my confidence that under your direction they will revive and renew the old glories of the Royal Navy, and prove once again the sure shield of Britain and of her Empire in the hour of trial.
>
> George R.I.

Admiral Sir John Jellicoe's reply to the King's message was as follows:

> On behalf of the officers and men of Home Fleet, beg to tender our loyal and dutiful thanks to your Majesty for the gracious message, which will inspire all with determination to uphold the glorious traditions of the past.
>
> (Signed) Commander-in-Chief, Home Fleet.

Sir John Jellicoe, on whom the eyes of the nation are fixed, is one of the most distinguished admirals of the sea service. He has wide sea experience, is a splendid administrator, and is at the same time a man of cool and determined judgment.

The appointment of Sir John Jellicoe was in itself of the nature of a romance. He had no small share in shaping the instrument he now commands, and he chose as his Chief of Staff another most distinguished officer, who happens to be his brother-in-law. Sir John Jellicoe and Rear-Admiral Charles Madden served together at the Admiralty on more than one occasion, both having, indeed, been Sea Lords, and they married daughters of Sir Charles Cayzer, Bt.

The Admiralissimo and his chief staff officer are known to be in the most complete accord on matters of strategy and tactics, and were both associated in the creation and equipment of the ships of the Home Fleets on which the fortunes of the British Empire will depend. They were members of the famous Dreadnought Design Committee, and were associated with Admiral

of the Fleet, Lord Fisher of Kilverstone, in his many reforms in naval administration.

No officer whom the Admiralty could have selected to go afloat at a juncture of such transcendent importance enjoys so completely the confidence of the naval service as Sir John Jellicoe. In December, 1912, he became a member of the Board of Admiralty, and then vacated the command of the Second Division of the Home Fleet, to which he was appointed over the heads of eleven vice-admirals—a fact which in itself points to the high estimation in which he is held by the naval authorities.

Born on December 5, 1859, he is the son of Captain J. H. Jellicoe, Educated at Rottingdean, Sir John Jellicoe entered the Royal Navy as a cadet on July 15, 1872, passing out of the "Britannia" first of his "batch" by over a hundred marks. In the examination for sub-lieutenant, which rank he attained six years later (December 5, 1878), he took three "firsts," in itself a remarkable achievement.

On August 23, 1880, he was promoted lieutenant, and two years afterwards, as a lieutenant on board the "Agincourt," he served in the Egyptian War. He was awarded the Egyptian medal and the Khedive's bronze star. On his return to England, in the following year, he studied at the Royal Naval College, Greenwich, where he won the special £80 prize for gunnery lieutenants. In May, 1886, while serving on board the "Monarch," he was awarded the Board of Trade silver medal for gallantry in saving life at sea, by commanding a gig which

went to the rescue of a stranded ship near Gibraltar, the sea being so heavy that the boat was capsized, but he and the crew were washed ashore. He served also as gunnery lieutenant of the "Colossus," and on the staff of the "Excellent" gunnery establishment.

Gazetted a commander in 1891, he was for a time employed as assistant to the Director of Naval Ordnance, being subseqeuntly appointed first lieutenant to the "Sans Pareil," and later to the ill-fated "Victoria," Admiral Sir George Tryon's flagship, on the Mediterranean station, which was sunk off Tripoli, on the Syrian coast, in collision with the "Camperdown," when the admiral, twenty-one officers, and 350 men were drowned. At the time of the collision Commander Jellicoe was on the sick list in his cabin. When the ship capsized he, with the aid of Mr. West, a midshipman, contrived to keep himself afloat till picked up. Commander Jellicoe's silver medal was lost with other effects in the "Victoria," and the Board of Trade, so it was reported at the time, intimated that another medal could be obtained on payment.

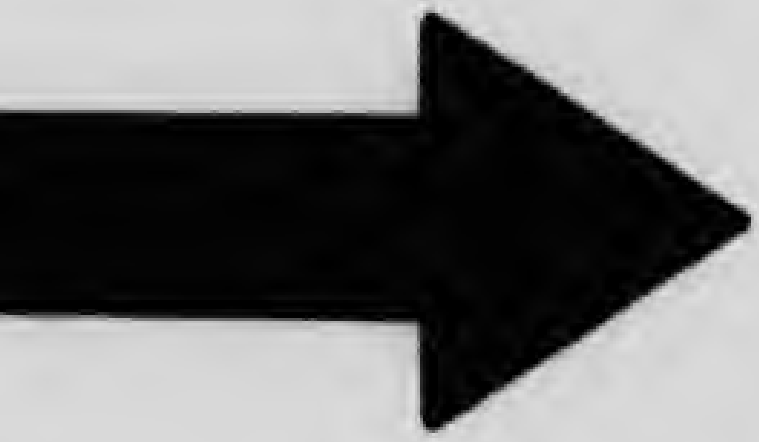
After serving as commander of the "Ramillies" flagship in the Mediterranean, he was promoted to the rank of captain (January 1st, 1897), and joined the Ordnance Committee. Admiral Sir E. H. Seymour selected him as flag captain in the "Centurion" on the China station. During the expedition to succour the Legations at Pekin in 1900, in which he narrowly escaped death by a severe gunshot wound, Captain Jellicoe commanded the Naval Brigade and acted as Chief

Staff Officer, when he gained not only the C.B., but was awarded by the German Emperor the second class of the Red Eagle with crossed swords.

Returning from China at the end of 1901, he was, in November of that year, appointed to superintend the building by contract of ships of war; he next served as Naval Assistant to the Controller of the Navy, which post he vacated in August, 1903, to take command of the "Drake," and in February, 1905, he took up the post of Director of Naval Ordnance and Torpedoes, in succession to Captain Barry.

Much has been said about the improvement of good shooting in the Navy, and in this connection considerable praise is due to Admiral Jellicoe. Without his help—so a writer in the *United Service Journal* once remarked, reflecting a judgment which is known to be well founded—the good work fostered by Admiral Sir Percy Scott would have been heavily handicapped—in fact, impossible; for the then Director of Naval Ordnance proved himself a man of original thought and prompt action, and one of the most capable gunnery experts in the Navy.

During the time he was in command of the "Drake," he turned it into one of the best shooting ships of the Navy, and while he was at the Admiralty as Director of Naval Ordnance Captain Jellicoe did all that was possible to ensure the guns mounted in ships in the first fighting line being fitted with the most up-to-date day and night sights, as well as to instal a fire-control set of instruments in each ship for



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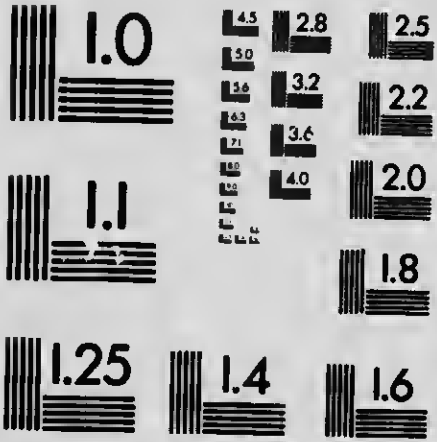

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"spotting" and controlling at long-range shooting. The fittings of the guns and gunnery appliances generally were also greatly improved during the tenure of his appointment.

CHAPTER V

Officers and Men of the British Navy

FROM the current Navy Estimates the following particulars are taken of the number of officers and men voted in 1914–15 for the naval service. First the strength of the Reserves is given, then the number of active service ratings and lastly the aggregate mobilised for war:

ROYAL NAVAL RESERVE

(Consisting of Merchant Seamen, Yachtsmen, etc.)

Home Force—General Service

	Numbers Voted 1914–1915.		Numbers borne on 1st Jan., 1914
OFFICERS.			
Executive Officers	1,340	1,790	
Com. Engr Officers	140		
Accountant Officers	120		
Warrant Engineers	190		
MEN.			
Leading Seamen	220	17,280	
Seamen	10,780		
Wireless Tel. Operators	120		
Engine Rm. Art.	560		
Ldg. Strs.	110		
Stokers	5,490		

Home Force—Trawler Section

Officers	142
Men	1,136

Colonial Branches			
Newfoundland:			
Men	600		
Malta:			
Men	400		
Australasia:			
Officers	—		
Men	—		
		21,348	19,467
ROYAL FLEET RESERVE			
(Consisting of Naval Seamen and others who have served in the Fleet for five years or more)			
MEN			
Class A.—Pensioners.			
Seamen Class	3,800	8,327	
Stoker Class	2,500		
Police rat.	187		
Royal Marines	1,840		
Class B.—Non-Pensioners.			
Seamen Class	9,150	18,710	
Stoker Class	6,500		
Police rat.	10		
Royal Marines	3,050		
Immediate Class.—Non-Pensioners.			
Seamen Class	1,600	4,070	
Stoker Class	1,870		
Royal Marines	600		
		31,107	27,734
ROYAL NAVAL VOLUNTEERS			
Officers and Men (efficients)	(a) 4,500	4,500	4,605
PENSIONERS			
Seamen	6,376		
Royal Marines	1,734	8,110	8,740
Total		65,065	60,546
Total, Active Service Ratings	151,000		144,871
Total Reserves	65,065		60,546
Grand total	(b) 216,065		205,417

(a) Includes 300 South African Division.

(b) 1,562 Ranks and Ratings on the Active List. Roya Fleet Reserve Men and Pensioners have been lent for service under Colonial and Foreign Governments.

When war was declared there was no dearth of officers and men for the British Fleet. The presentation of a Supplementary Estimate to Parliament by the Admiralty, after the declaration of hostilities, gave rise to a misunderstanding. This action was a mere formality in order to keep the right side of Treasury precedure, and it did not mean that 67,000 additional officers and men were going to be raised. What happened was that Reservists to the number of about 60,000 were called up and they were forthwith transferred to Vote A., which fixes the number of active service officers and ratings and provides pay for them.

Whereas Parliament provided in the spring of 1914 for an active personnel of 151,000 with 60,000 Reservists, the two totals had to be added together so as to obtain Parliamentary sanction for full pay being provided for 211,000. In addition the new vote left room for a slight actual expansion—consisting of a number of retired officers and a quota of artisan and other skilled [illegible]ngs to be forthwith raised.

Thus we get an aggregate of 218,000 officers and men for service ashore and afloat. This total includes cadets and boys under training, and approximately 200,000, it may be assumed, were available for service in the Home Fleets and the squadrons in distant seas. It is an axiom that in peace we have more ships than we can man, while in war we shall have a good surplus of men after manning all the ships. When passing from a pe[illegible] a war footing, Royal Fleet reservists—well-trained men with from five to seven years'

service—and others became available and the Fleet was fully mobilised, having no inconsiderable surplus to make good the casualties of battle.

CHAPTER VI

The Commander-in-Chief of the German Fleet

THERE is a certain parallel between the circumstances which have brought the commanders-in-chief of the British and German battle fleets into the positions they respectively hold to-day. Just as Admiral Sir John Jellicoe was long since "ear-marked" for the supreme command of the Home Fleets, so was Admiral Friedrich von Ingenohl selected for the control of the German High Seas Fleet years before his appointment was actually gazetted.

The German commander-in-chief, whose flag now flies in the Dreadnought, Friedrich der Grosse, is without doubt one of Europe's most distinguished naval officers. In a navy where more than elsewhere, a premium is placed upon scientific leadership, this officer early attracted the attention of his superiors by reason of the skill and resourcefulness he displayed during manœuvres. He is said to have specialised in cruiser tactics, and to have been one of the first officers to urge upon the Navy Department the wisdom of adopting the battle-cruiser design

when that novel conception materialised in the British "Invincible." He is also known as the leading advocate of that system of tactics which is known in Germany as the "rücksichtslose Offensive," and which in homely idiom may be translated as "going for" the enemy hammer and tongs.

In a word, Admiral von Ingenohl is the embodiment of the strikingly progressive spirit which pervades the modern German navy. It is by no means a spirit of mere reckless dash, which reckons on gaining a victory solely by impetuous onslaught. Under modern conditions, tactics such as these might well be fatal to those who employed them, owing to the deadly precision of heavy guns and the development of the torpedo. The German school of naval thought favours, instead, a preliminary period of "mosquito warfare," seeking thus to reduce both the material and the moral strength of an enemy before the actual clash of armoured squadrons takes place. That this idea is faithfully to be adhered to is clear from the opening incidents of the present campaign at sea, which have already shown that reliance is placed on the torpedo and the mine as a preliminary means of diminishing our preponderance in big ships. So far, indeed, the German plan of campaign has been singularly true to the principles advocated by the leading German authorities who have written of naval warfare. They lead us to anticipate a good deal of this "Kleinkrieg" before the High Seas Fleet emerges from cover. On the other hand, it were unwise to suppose that the German Fleet will

continue to act strictly by the book, especially in view of the character of its commander-in-chief.

In German naval circles Admiral von Ingenohl is known as one of the first German flag officers who completely freed themselves from the military traditions in which the fleet was cradled and has been reared. The German navy, as is well known, was founded as a branch of the army, and its early development proceeded on distinctly military lines. Until the present Emperor came to the Throne the head of the Admiralty was always an army officer, and it followed that, in so far as the different conditions permitted, the strategy and tactics of the fleet were brought into line with those of the land forces. Ships were regarded primarily as units for coast defence, in the most limited sense of the word. This held true far into the nineties, and it is actually less than two decades since Germany first undertook the construction of ships which were specially designed to meet and defeat the foe in open sea. It seems probable that Admiral von Ingenohl owes something of his broader views on naval strategy to the large amount of foreign service he has seen.

Born in 1857 of comparatively humble parents, he entered the navy at the age of 17. The service in those days enjoyed nothing like its present prestige. It offered no attractions to the sons of the upper classes, and was completely overshadowed by the army, then in the zenith of its brilliance and popularity, after the successful war against France. The navy drew a large majority of its officers from a class whose social status was

considered scarcely high enough to give its sons the entrée to the army. Proof of this will be seen in the conspicuous absence of naval officers who are hereditary nobles. Admiral von Ingenohl, in common with Grand-Admirals von Tirpitz, von Koester, and several other flag officers, received his patent of nobility as a mark of Imperial favour.

While on his maiden cruise in foreign waters the young officer was privileged to see some fighting. His ship, the old "Vineta," was one of a small German squadron which was assembled to teach the Chinese pirates a lesson. Nineteen years later he was again in action in the same quarter of the globe, and against the same opponents, when the gunboat "Iltis," which he commanded, shelled a battery at Tamsui, which had fired on a German steamer. In the intervals of command afloat he was engaged at the Navy Department, where he put in one spell of nearly three and a half years as divisional chief of the ordnance board, and subsequently directed a department of the Admiral Staff. His first important independent command was the battleship "Wörth," in her day one of the best ships in the navy. He was next appointed to the cruiser "Kaiserin Augusta," and shortly after to the "Hertha," a more powerful ship of the same class. After another short interval of shore work he was appointed to command the Imperial yacht "Hohenzollern," where, of course, he came under the direct eye of the Kaiser, who was quick to recognise his qualities.

As early as 1889 he had been a lieutenant in

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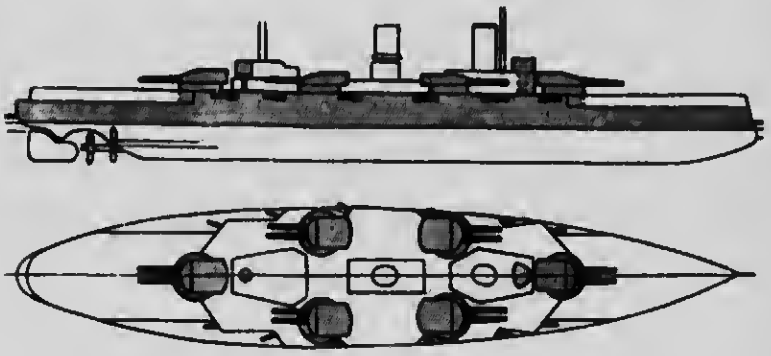
POSEN CLASS.

NASSAU, POSEN, RHEINLAND, WESTFALEN.

Displacement: 18,900 tons.

Speed: 20 knots; Guns: 12 11in., 12 6in., 16 24pdrs.; Torpedo tubes: 6.



Astern fire:	Broadside:	Ahead fire:
6 11in.	8 11in.	6 11in.
4 6in.	6 6in.	4 6in.

the old Imperial yacht in which the Emperor made his first long cruises. On leaving the "Hohenzollern" in 1908 he was promoted to Rear-Admiral, and placed in charge of the second division of the First Squadron. In the following year he hoisted his flag as admiral of the cruiser squadron in China, whence he was recalled twelve months later to assume charge of the Second Battle Squadron in home waters. The commander-in-chief of the High Sea Fleet was then Admiral von Holtzendorff, who, after Grand-Admiral von Koester (the president of the Navy League), is considered to be the finest naval strategist in Germany. Under this officer the battle fleet is said to have increased remarkably in efficiency, both in regard to gunnery, seamanship, and general smartness. This period witnessed the introduction into the fleet of up-to-date shooting methods, and notably of long-range practice. In the manœuvres of 1912 the Second Squadron, commanded by Admiral von Ingenohl, was held to have scored a decisive success against a much stronger fleet, which included seven Dreadnought battleships, whereas his own squadron was composed of older and weaker ships. In January, 1913, Admiral von Holtzendorff hauled down his flag, and was succeeded by Admiral von Ingenohl as commander-in-chief.

The leader of the German battle fleet has, therefore, held his present appointment for upwards of eighteen months, and it is to be supposed that he is thoroughly familiar with every unit of his fine force, especially as the ships in

active commission spend more than nine months of the year at sea. The fleet certainly stands to benefit by this comparatively long period of single command. It will feel the confidence born of experience in its distinguished leader, and he in turn, knowing exactly what his ships can do, need fear no check to his plans by unsuspected defects in personnel or material. Whatever the near future may bring, it is certain that the German navy will put forth its utmost effort to fulfil the hope placed in it by the nation, and those who anticipate a cheaply purchased naval victory for us are laying up a rude disappointment for themselves. The material resources of the German fleet alone can give some idea of its formidability, but its potentiality will be incalculably increased if the leadership is of the high order which the reputation of the present commander-in-chief leads us to expect.

CHAPTER VII

Officers and Men of the Foreign Navies

PERSONNEL OF THE NAVIES

	Officers (including cadets).	Non-commissioned officers and men.	Total (all ranks).
Germany - -	4,491	74,895	79,386*
France - -	2,844	62,611	65,455
Russia - -	3,404	57,000	60,404
Austria-Hungary -	1,377	19,132	20,509
Japan - - -	4,713	49,950	54,663

* Including 7,726 "Seamen Artillerists" and "Marines" who do not serve at sea.

NOTES TO PERSONNEL STATISTICS

GERMANY.—The Imperial German Navy is manned largely by conscription. About 25 per cent. of the non-commissioned personnel consists, however, of volunteers, or long-service men, who have made the Navy their profession. These "professionals," as they are called, are the backbone of the fleet. They fill all the really important posts, such

as that of gun-captain, gun-layer, torpedo-gunner, leading signalman, and they are responsible for the efficiency of the conscripts under their charge. Seventy-five per cent. of the personnel is represented by conscripts mainly from the inland districts whose term of service is three years, and who see the sea for the first time after entering the Navy. Enrolment takes place each October, and after two or three weeks of rudimentary instruction on shore, they are distributed among the battle-fleet and the torpedo flotillas. Hence, at the outbreak of war, 25 per cent. of the German personnel had been under training about 34 months, 25 per cent. about 22 months, and 25 per cent. no longer than 10 months.

Owing to the limited period of service German naval training is extremely strenuous and intensive. Every effort is made to specialize, newcomers being selected for certain duties according to the aptitude they display. The German bluejacket is not a "handy man" in the sense that the British sailor is, but he is said to be efficient in his own particular groove. Discipline is exceedingly strict, and the relations between officers and men are rarely cordial.

The officers are well educated and very scientific in their methods.

FRANCE.—The French Navy is manned principally on the conscript system, but as France has a large maritime population, the majority of the naval recruits are men who have followed the sea since boyhood and who, therefore, adapt themselves very quickly to service in the Fleet. There is also a large percentage of long-service volunteers. The period of compulsory service was, until lately, two years, but under the new Law this has been raised to three

years. Authorities speak highly of the French bluejacket's intelligence and courage. Discipline is good, but not so strict as in the German Navy. The officers are, as a rule, men of high scientific attainments and very keen on their work.

RUSSIA.—The Russian Navy is manned almost exclusively by conscripts, who serve for five years afloat. Although his education generally leaves much to be desired, the Russian sailor has many excellent qualities. He is obedient, courageous, and never gets into a panic. Since the disastrous war with Japan, the Navy has been purged of many of the elements which impaired efficiency. The officers are now capable and zealous. The change which has come over the Fleet is evidenced by an "order of the day," recently promulgated, which enjoins all naval officers never to surrender their ships under any circumstances, but to sink them if capture is imminent.

AUSTRIA-HUNGARY.—The Austro-Hungarian Navy is manned by conscripts and volunteers, the former largely predominating. Four years is the period of service. The men are drawn almost exclusively from the Dalmatian coast, and represent a very hardy and courageous type. The average of education is, however, very low, the percentage of illiterates being abnormal. Although Italian is the mother tongue of the majority, German is the official language of the Navy. All-round efficiency is maintained on a high level. The officers are men of excellent education, wide knowledge, and unlimited zeal.

JAPAN.—The Japanese Navy is principally manned on a compulsory basis, the term of active

service being three years. The men are excellent in every way, smart, intelligent, resourceful, and amenable to discipline. They display a wonderful aptitude for manipulating the complex mechanism of a modern warship, as was proved in the campaign against Russia. The officers are highly trained and enterprising.

CHAPTER VIII

German Naval Bases

KIEL

Kiel, in spite of the growing importance of Wilhelmshaven, still retains its position as Germany's premier "Reichskriegshafen," or Imperial War Port. Its superb harbour, and the international regatta, known as the "Kieler Woche," which is held each June, have made Kiel one of the best known ports of Europe. This year's regatta, it will be remembered, was rendered memorable by the presence of the British Second Battle Squadron and some of our light cruisers. The Imperial Dockyard at Kiel is said to be one of the best-equipped establishments of its kind in the world.

It has two large building slips, on one of which the Dreadnought battleship "Kaiser" was constructed, and there are other slips for the building of smaller vessels. Of the six graving docks, two are large enough for Dreadnoughts. There is also a mammoth floating dock capable of raising vessels up to 39,500 tons, and five other pontoon docks for ships of smaller dimensions. Upwards of 10,500 officials and hands are employed at the yard, which specialises in repair and refitting work,

though a good deal of new construction is also undertaken.

Kiel is the official residence of Prince Henry of Prussia, the Kaiser's brother, who is Inspector-General of the Fleet. Some four miles down the harbour is Holtenau and the locks of the Kaiser Wilhelm Canal. Kiel is very strongly defended against both land and seaward attack. The harbour entrance is guarded by the batteries of Friedrichsort on the west, and those of Laboe and Möltenort on the east. At Friedrichsort the fairway is less than 1,000 yards wide, so that ships attempting to force an entrance would have to run the gauntlet of the heavy fortress guns at almost point-blank range. Friedrichsort is the home of the State torpedo factory, which supplies practically the entire navy with these weapons.

In normal times the Second and Third Battle Squadrons are based on Kiel, which is also the base for the Baltic Reserve Squadron, the First Torpedo Division, and the submarine flotillas. Besides the State yard, there is the immense shipbuilding and engineering establishment known as the Germania Yard, owned by Krupps, and the Howaldt Yard, both of which construct warships of the largest size. Hence the building and repairing facilities at Kiel are very extensive, and they pass automatically under State control in wartime. Kiel itself is a large and thriving city, with a population of 180,000. Its growth dates from 1866, when it was wrested from Denmark by Prussia, with the whole of the Schleswig-Holstein province.

HELIGOLAND.

Heligoland is the most remarkable of Germany's naval strongholds. This island, it will be remembered, was ceded to Germany by us in 1890. At that date the sea had made such inroads on the soft cliffs that the complete disappearance of Heligoland at no very distant date was freely predicted.

With characteristic thoroughness the Germans took measures to preserve their new acquisition. Immensely strong breakwaters and sea-walls were built all round the coast, but violent gales demolished much of the work, which had to be replaced at great expense, and it is only in recent years that the ravages of the sea have been completely checked.

Simultaneously with this work a good deal of land reclamation went on, with the result that the area of the island has been greatly increased.

A large harbour for torpedo-boats and submarines has been enclosed by two long moles. Inside there is a miniature dockyard, with repair shops, magazines, stores, &c. Outside this harbour there is a safe anchorage for warships of great size. It is estimated that from beginning to end the naval works at Heligoland have cost Germany something like £10,000,000 sterling.

Fortifications of remarkable strength have been erected. These consist chiefly of heavy guns, mounted in steel turrets, well concealed from the view of an enemy at sea, and so placed that every approach to the island is swept by their fire. As

these guns are mounted on the plateau they have a high command, and attacking ships would have to encounter a plunging fire.

Numerous bomb-proof control stations and magazines have been excavated. It is understood that, given an ample supply of ammunition and provisions, Heligoland is in a position to resist attack by the strongest naval force for an indefinite period.

There is a powerful wireless station, a naval flying depot, and a large naval hospital. The garrison consists in the main of four companies of seamen gunners. The commandant is Rear-Admiral Jacobson.

The high strategical importance of Heligoland is self-evident. Its position, some thirty-five miles from the mainland, is that of a strong outpost, defending the estuaries of the Elbe and Weser. A flotilla of destroyers or submarines based on the island could make things very uncomfortable for a fleet endeavouring to blockade the German coast, and it was the recognition of this fact which led to the construction of the new torpedo harbour.

Thanks to the wireless station, communication can always be maintained with the mainland, and also by means of aircraft.

In common with most military nations, Germany appears to place undue reliance on fixed defences as an element of sea power, but it is obvious, from the vast sums of money she has spent on its development, that Heligoland plays a leading part in the German plan of naval strategy.

BORKUM.

The island of Borkum came into prominence a few years ago as the result of an alleged case of espionage, in which two young British naval officers were concerned.

Borkum is the first German island of the Frisian group. It commands the approach to the Ems, and would offer a convenient *point d'appui* for naval operations against the German coast. This, apparently, explains why it has been strongly fortified by the Germans.

Its guns are said to be numerous, and are well placed among the lofty sand dunes which are a feature of the island. The garrison is supplied by the army, and includes some batteries of field artillery and machine guns.

The experience gained during naval manœuvres has shown that Borkum would be a difficult place to surprise. According to report, some of the guns in position are powerful enough to inflict serious damage on the largest warships.

EMDEN.

Emden, the southernmost port of Germany on the North Sea, has of late years acquired considerable naval importance. There have been frequent reports of the pending establishment of a State dockyard there, in connection with the Ems-Jade canal, which was to be deepened sufficiently to allow fairly large warships to traverse it. So far, however, this project has not been carried out.

Two years ago Emden became a mine station, and the headquarters of the "Arkona," a light cruiser converted into a mine-layer. Harbour works on a grand scale have lately been completed at Emden. There is a commodious basin fronted by wharves and warehouses, and fitted with up-to-date coaling plant. The canal which connects the port with the river is deep enough to allow the largest ships to come up.

During the present war it is probable that Emden is being used both as a mine and torpedo base. It relies for its defence on the batteries at Borkum, some miles out at sea, as ships entering the River Ems are compelled to pass close to this island.

The railway connections of Emden are very good, so good, in fact, that they are believed to have been dictated by strategical considerations. Emden has often been spoken of by German writers as a sally port, and as a convenient point of assembly and embarkation for an army of invasion.

WILHELMSHAVEN.

Wilhelmshaven ranks officially as Germany's second war harbour, though its strategical position makes it, in fact, the principal base of a German fleet operating in the North Sea. It began its career as a naval station as late as 1869, since when enormous sums of money and infinite labour have been expended on its development.

In area the dockyard is almost four times as large as that of Kiel, and it is even more modern

in equipment. It contains a bewildering number of docks and basins, together with building slips, repair shops, depots, and store-houses. There are three Dreadnought graving docks and four smaller ones, and five floating docks, of which the latest can raise vessels up to 39,500 tons.

Only one of the building slips is available for constructing Dreadnoughts, but a second is being lengthened sufficiently for this purpose. The total number of officials and workmen is about 10,500 under peace conditions. At Wilhelmshaven were built the Dreadnought battleships "Nassau," "Ostfriesland," and "König," and at the present moment the battle-cruiser "Ersatz Hertha" is building there.

The terminus of the Ems-Jade Canal is inside the dockyard, but so far as is known this waterway is too shallow to permit the passage of any class of warship.

The Jade Channel, which leads to Wilhelmshaven, is exceedingly difficult to navigate, owing to the innumerable and constantly shifting shoals with which it is infested. To keep this channel clear elaborate dredging operations have to be carried on throughout the year, as otherwise it would speedily silt up and become impassable. Access to the harbour is gained through huge locks, most of which can be used, if necessary, as emergency docks for repairing damaged ships. When these locks are closed the harbour is entirely cut off from the sea, thus affording the ships inside complete security against torpedo attack.

Commodious as the harbour is, however, it is not large enough to contain the whole fleet, and consequently extra moorings were recently laid outside for cruisers and other small craft. The locks are designed on so large a scale, and are so efficiently operated that several squadrons of big ships can be passed through in a few hours.

Wilhelmshaven is the base of the First Battle Squadron, the Scouting Squadron (*i.e.*, all the battle-cruisers and other cruisers of the High Sea Fleet), the 2nd Torpedo Division, and of a submarine flotilla. It is very heavily fortified.

The approach to the Jade Channel is commanded by the batteries of Wangerooge, an island garrisoned by seamen gunners, and said to have very powerful guns. There is a flying station at Wilhelmshaven, with hangars for a dozen seaplanes.

CUXHAVEN

Cuxhaven has lately become an important German naval base. Situated as it is at the extreme entrance of the Elbe estuary, it commands the approach to the great commercial port of Hamburg, seventy miles up the river.

Cuxhaven has no dockyard of its own, but it possesses a harbour large enough to accommodate great ships of war, and certain facilities for carrying out repairs are provided by the depot of the Hamburg-Amerika Line, of which it is the headquarters.

A mile or two west of the harbour are the batteries of Döse, mounting a number of heavy

guns and quick-firers. These defences are controlled by the navy, and are garrisoned by five companies of seamen gunners.

Although the mouth of the Elbe is wide, only a narrow channel is available for vessels of moderate draught, and the defences have consequently been designed to bring an overwhelming fire to bear on hostile vessels using this navigable approach.

For some years Cuxhaven has been the principal mine station of the German navy. It is the base for the mine-laying and mine-sweeping divisions, composed of special ships and a large number of old torpedo-boats equipped for the work. This station is responsible for the observation mine-fields which close the Elbe to hostile ships in war. It contains an artillery depot, a powerful wireless station, and barracks for a large contigent of seamen gunners and marines.

Cuxhaven, moreover, is the principal base of the German air fleet. An immense shed, 590-ft. long, 98-ft. high, and capable of sheltering two of the largest dirigibles, is approaching completion. This structure is of the revolving type, thus permitting airships to dock or emerge without being exposed to the wind. It rests in an excavation. When the shed is lowered the roof is on a level with the surrounding country, and by this means the location of the shed is hidden from hostile aircraft.

Near at hand there are permanent hangars for a number of seaplanes, with workshops for repairing and fitting aircraft of every description.

The German authorities are credited with

the intention of gradually developing Cuxhaven into a first-class naval base, in order to relieve the congestion at Wilhelmshaven.

BRUNSBÜTTEL.

Brunsbüttel is the western terminus of the Baltic-North Sea canal. It is situated about ten miles up the River Elbe, on the Schleswig-Holstein shore. Some batteries are believed to exist at this point, armed with guns powerful enough to repel torpedo craft, but the real defences of the canal locks are the forts at Cuxhaven, at the mouth of the river.

The widening of the canal, which is now practically completed, necessitated the construction of new locks on a gigantic scale at each end. Those at Brunsbüttel were completed early this year, in advance of the locks at the Kiel end.

Brunsbüttel has a harbour nearly 1,700-ft. long and 680-ft. wide. Large supplies of coal and oil are kept here, and there is a well-equipped coaling plant which enables vessels to coal with great rapidity. The canal locks are of such massive construction that it is doubtful whether they could be seriously damaged by torpedo attack.

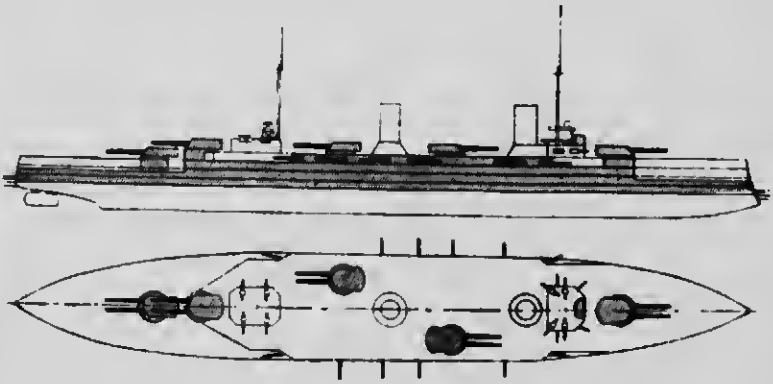
Moltke *Photo: Central News.*

MOLTKE CLASS.

MOLTKE AND GOEBEN (slight differences).

Displacement: 23,000 tons.

Speed: 28 knots; Guns: 10 11in., 12 6in., 12 24pdrs.; Torpedo tubes: 4.



Astern fire:	Broadside:	Ahead fire:
8 11in.	10 11in.	6 11in.
2 6in.	6 6in.	2 6in.

CHAPTER IX

The Kiel Canal

Although it is a generally accepted fact that the Kiel Canal forms one of Germany's most valuable naval bases, it is just possible that its value in war will be found to be greatly overrated. There is no question that the size of the locks and the depth of the canal, viz., 36 ft., will allow battleships of the greatest draught to pass through; but, to make the point clear, it is necessary to consider the nature of the navigable channels leading to both the Baltic and the Elbe entrances to this great strategical undertaking.

Dealing with the Kiel end of the canal first, the entrance is situated some seven or eight miles up the estuary leading into Kiel Bay. From Kiel Bay to the North Sea a vessel has, according to her draught of water, the choice of three routes into the Kattegat, viz., Little Belt, Great Belt and the Sound. The first-named could only be used by small light draught vessels,

such as destroyers and submarines. The passage through the Great Belt, and also that via the Sound, would have to be navigated by a heavy battleship on a favourable state of the tide. The least width across the Little Belt is abreast of the town of Fredericia, in Denmark, where the passage is less than three-quarters of a mile wide. In the Great Belt the navigable channels are restricted in places to about a mile or even less in width. Between Helsingor, in Denmark, and Helsinborg, in Sweden, the Sound is but little over a mile wide and only about 20 ft. deep at low water. The eastern channel of the Kattegat has deep water, and the distance between the Scaw, the northern end of Denmark, and the nearest outlying island off the Swedish coast, is about twenty-five miles.

From the above showing, it will be seen that the narrow and tortuous passages which a warship must use if she wishes to proceed from Kiel Bay to the North Sea present an easy problem to render them unnavigable by the use of submarine mines. And, again, the narrowness of the entrance to the Kattegat lends itself to easy watching by the scouts of a fleet in the North Sea. German naval authorities, of course, realised the geographical disadvantages of Kiel years ago, and, in an attempt to remedy the evil, widened and deepened the Kiel Canal.

The Elbe entrance of the canal, which is situated at Brünsbuttel, is some seventeen miles from Cuxhaven, which, as is well known, is the

Gravesend of Hamburg. The channels between Brünsbuttel and Cuxhaven, which are very narrow, have a sufficient depth at low water for vessels of a moderate draught, and the anchorage room, except for ships drawing but a few feet of water, is somewhat limited. A big battleship, drawing 30 ft. or more, as she would do with stores and ammunition on board, would have to navigate the distance from the canal entrance to Cuxhaven on a flood tide, and if required to bring up would have to moor in the usual manner with two anchors. In fact, the same navigational procedure would have to be followed after passing Cuxhaven until the ship would nearly reach No. 2 Lightship at the mouth of the Elbe.

Of course, the Germans have no need to block all the available room in the Elbe with big ships, for they have many other deep-water anchorages close at hand. The entrance of the Weser River, from Roter Sand Lightship to Hohe Weg Lighthouse, and Schillig Road, in the Jade River, are both excellent big ship anchorages. Turning to available shelter for smaller craft on the German North Sea coast, this can be found in numerous inlets and channels from the borders of Denmark in the north to the entrance of the Ems in the south.

But now we have reached an important point. We know that the long chains of off-shore lightships along the German coast have been withdrawn from their stations, and that the navigation lights on shore have been discontinued. Should German warships, which we may assume are

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spread about in the various anchorages already referred to, make a dart to sea, especially at night-time, there is every probability of some of them stranding on the numberless flats and shoals which extend for many miles seaward from the low-lying shore of Germany. And, with the absence of lights and with mine-sown channels to navigate, getting back on a dark, dirty night to their havens would inevitably cause destruction to many a ship, whether large or small. The wilder the weather, the more toll would this dangerous coast claim. The British cruisers, when chasing their quarry, would hold the whip-hand. The sounding machine and hand-lead would tell them when to 'bout ship.

It is interesting to mention that for two-thirds of the fifty-six miles in length of the Kiel Canal the banks on either side are practically flat, and, owing to the nature of the soil, which is largely peat, they are constantly subsiding into the channel. This, besides necessitating constant dredging, in order to maintain the great depth of water required for battleships, forces vessels to proceed at their slowest speed possible. A battleship would take, therefore, the best part of twelve hours to get through from the Elbe to Kiel.

In view of the fact that the distance from Kiel to the Scaw, via the Sound passage, is 325 miles—from Kiel to the Scaw via the intricate channels of the Great Belt is about 245 miles—a battleship would occupy thirty-six hours fully, under the best conditions of tide and

weather, to reach the waters of the North Sea. In these days a naval battle can be decided in a fractional part of that time.

CHAPTER X.—THE GREAT FLEETS ENGAGED; TABULAR STATEMENT.

THE BRITISH NAVY.

BRITISH BATTLESHIPS (Dreadnought Type).

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Queen Elizabeth Class.						
Barham *	27,500	25	900	1915	Belt: 13½-in.; P.D. 2¾-in.; Guns 13½-in.; C.T. 13½-in.	15-in., eight; 6-in., sixteen; 12 pr., twelve; torpedo tubes, five.
Malaya *				"		
Queen Elizabeth *				1914		
Warspite *				"		
Valiant *				1915		
Agincourt	27,500	22	1,100	1914	Belt: am. 9-in.; P.D., 2½-in; turrets, 9-in.	12-in., fourteen; 6-in. twenty; 3-in. ten.
Iron Duke Class.						
Benbow	25,000	22·5	900	1914	Belt: 12-in.; P.D. 2¾-in.; Guns 12-in.; C.T. 12-in.	13·5-in., ten; 6-in., twelve; 3-in. anti-aerial, two; torpedo tubes, four.
Emperor of India				"		
Marlborough				"		
Iron Duke				"		
King George V. Class.						
Ajax	23,000	21	900	1913	Belt: 12-in.; P.D. 2¾-in.; Guns 12-in.; C.T. 12-in.	13·5-in., ten; 4-in., sixteen; 3 pr., four; torpedo tubes, three.
Audacious				"		
Centurion				"		
King George V.				"		
Erin *	23,000	21	870	1914	Belt: 12-in. P.D., 3-in.	13·5, ten; 6-in. sixteen.

* Not yet completed, but due for completion 1914–15.

King George V. - - -	23,000	21	870	1914	Belt: 12-in. P.D., 3-in.	13·5, ten; 6-in. sixteen.
Erin * - - - -				"		

* Not yet completed, but due for completion 1914–15.

Orion Class.						
Conqueror - - -	22,500	21	800	1912	Belt: 12-in.; P.D. 2½-in.; Barbette 10-in.	13·5-in., ten; 4-in. sixteen; 3 pr., four; torpedo tubes, three.
Monarch - - -				"		
Thunderer - - -				"		
Orion - - - -				1911		
Colossus Class.						
Colossus - - -	20,000	21	780	1911	Belt: am. 10-in.; f. 8-in; a. 7-in.; P.D. 2½-in.; Barbette and C.T. 11-in.	12-in., ten; 4-in., sixteen; 3 pr., four; torpedo tubes three.
Hercules - - -				"		
Neptune - - -	19,900			"		
St. Vincent Class.						
Collingwood - - -	19,250	21	724	1910	Belt: am. 9½ in.; f. 6½-in.; a. 6½-in.; P.D. 2½-in.; Barbette 11-in.	12-in., ten; 4-in., eighteen; 3 pr., four; machine, six; torpedo tubes, three.
Vanguard - - -				"		
St. Vincent - - -				1909		
Bellerophon Class.						
Bellerophon - - -	18,600	21	780	1909	Belt: am. 11-in.; f. 6-in.; a. 4-in.; P.D. 2½-in.; Barbette 11-in.	12-in., ten; 4-in., sixteen; 3 pr., four; torpedo tubes, three.
Téméraire - - -				"		
Superb - - -				"		
Dreadnought - -	17,900	21	770	1906	" "	12-in., ten; 12 pr., twenty-four; torpedo tubes, five.

* Ex-Turkish *Osman Birindich.* † Ex-Turkish *Reshadich.*

Note to Armour details: am. = amidships, f. = forward, a. = aft, P.D. = protective deck, C.T. = conning-tower.

BATTLESHIPS (Pre-Dreadnought Type)

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Lord Nelson Class.						
Agamemnon	16,500	18	865	1907	(Krupp) Belt: am. 12-in.; f. 4-in.; a. 4-in.; P.D. 2-in.; Barbette 12-in.; C.T. 12-in.	12-in., four; 9·2, ten; 3-in., twenty-four; torpedo tubes, five.
Lord Nelson				"		
King Edward VII. Class.						
Africa	16,350	18	825	1906	(Krupp) Belt: am. 9-in.; f. 6-in.; a. 2-in.; P.D. 2-in.; Barbette 12-in.; C.T. 12-in.	12-in., four; 9·2, four; 6-in., ten; 12 pr., fourteen; 3 pr., fourteen; Maxims, two; torpedo tubes, four.
Britannia				"		
Commonwealth				1905		
Dominion				"		
Hibernia				1906		
Hindustan				1905		
King Edward VII.				1904		
Zealandia				1905		
Swiftsure Class.						
Swiftsure	11,800	20	700	1904	(Krupp) Belt: am. 7-in.; f. 3-in.; a. 2-in.; P.D. 3-in.; Barbette 10-in.; C.T. 10-in.; Cas. 7-in.	10-in., four; 7·5, fourteen; 14 pr., fourteen; 12 pr., two; 6 pr., four; Maxims, four; torpedo tubes, two.
Triumph				"		

					10-in. ; C.T. 10-in. ; Cas. 7-in.	Maxims, four; torpedo tubes, two.
Formidable Class.						
Bulwark - - -				1902	(Krupp) Belt: am. 9-in.; f. 6-in.; P.D. 3-in.; Barbette 12-in.; C.T. 12-in., Casemates 6-in.	12-in., four; 6-in., twelve; 12 pr., eighteen; 3 pr., two; Maxims, two; torpedo tubes, four.
Formidable - - -				1901		
Implacable - - -				"		
Irresistible - - -	15,000	18	781	1902		
Queen - - - -				"		
Prince of Wales - -				1904		
London - - -				"		
Venerable - - -				1902		
Duncan Class.						
Albermarle - - -				1903	(Krupp) Belt; am. 7-in.; f. 5-in.; a. 1½-in.; P.D. 2½-in.; Barbette 11-in.; C.T. 11-in.; Casemates 6-in.	12-in., four; 6-in., twelve; 12 pr., twelve; 3 pr., six; Maxims, two; torpedo tubes, four.
Cornwallis - - -				1904		
Duncan - - -	14,000	19	750	1903		
Exmouth - - -				"		
Russell - - -				"		
Canopus Class.						
Albion - - -				1901	(Harvey Nic.) Belt: am. 6-in.; f. 2-in.; a. 13-in.; P.D. 2½-in.; Barbette 12-in.; C.T. 12-in. Casemates 5-in.	12-in., four; 6-in., twelve; 12 pr., twelve; 3 pr., six; Maxims, two; torpedo tubes, four.
Canopus - - -				1899		
Glory - - - -				1900		
Goliath - - -	12,950	18	700	"		
Ocean - - - -				"		
Vengeance - - -				1902		

Note to Armour details; am. = amidships, f. = forward, a. = aft, P.D. = protective deck, C.T. = conning-tower.

BATTLESHIPS (Pre-Dreadnought Type)—*Continued.*

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Majestic Class.						
Caesar	14,900	17	750	1898	(Harvey) Belt: am. 9-in.; P.D. 4-in.; Barbette 14-in.; C.T. 14-in. Casemates 6-in.	12-in., four; 6-in., twelve, 12 pr., sixteen; 3 pr., four; Maxims, two; torpedo tubes, five.
Hannibal				"		
Illustrious				"		
Jupiter				1897		
Magnificent				1895		
Majestic				"		
Mars				1897		
Prince George				1896		
Victorious				1897		

BATTLE CRUISERS.

Queen Mary Class.						
Queen Mary	27,000	28	1,000	1914	Belt: 9-in.; P.D. 3-in.; Turrets 9-in.	13·5, eight; 4-in., sixteen; 13·5, eight; 6-in., twelve; torpedo tubes, two.
Tiger				1913		

twelve; torpedo tubes, two.						
Lion Class.						
Princess Royal - -	26,350	28½	980	1912	Belt: 9-in.; Turrets 9-in.; P.D. 3-in.	13·5, eight; 4-in., sixteen; torpedo tubes, two.
Lion - - - -				1911		
Australian Class.						
Australia - - -	19,200	25	780	1912	Belt: 8-in.; P.D. 3-in.; Turrets, 10-in.	12-in., eight; 4-in., sixteen; torpedo tubes, two.
New Zealand - -	18,800			,,		
Invincible Class.						
Indefatigable - -	18,750	25	790	1911	(Krupp) Belt: am. 7-in.; f. 6-in.; a. 4-in.; Turrets 7-in.; P.D. 2½-in.	12-in., eight; 4-in., sixteen; torpedo tubes, two.
Invincible - - -				1908		
Inflexible - - -	17,250	25	780	,,		
Indomitable - -				,,		

ARMOURED CRUISERS.

Minotaur Class.						
Defence - - -	14,600	23	850	1908	(Krupp) Belt: am. 6-in.; f. 4-in.; a. 3-in.; P.D. 1½-in.; Barbette 8-in.	9·2, four; 7·5, ten; 12 pr., sixteen; torpedo tubes, five (submerged).
Shannon - - -				,,		
Minotaur - - -				,,		

Note to Armour details: am. = amidships, f. = forward, a. = aft, P.D. = protective deck, C.T. = conning-tower.

ARMOURED CRUISERS—*Continued.*

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Duke of Edinburgh Class.						
Achilles	13,550	23	704	1907	(Krupp) Belt: am. 6-in.; f. 4-in.; a. 3-in.; P.D. ¾-in.; Barbette 6-in.	9·2, six; 7·5, four; 3 pr., twenty-four; torpedo tubes, three.
Cochrane				"		
Natal				"		
Warrior				1906		
Duke of Edinburgh				1905		
Black Prince				1906		9·2, six; 6-in., ten; 3 pr., twenty; torpedo tubes, three (submerged).
Devonshire Class.						
Antrim	10,850	23	655	1905	(Krupp) Belt: am. 6-in.; f. 2-in.; P.D. 2-in.; Barbette 5-in.; Casemates 5-in.	7·5, four; 6-in., six; 3-pounders, twenty; Maxims, two; torpedo tubes, two (submerged).
Argyll				"		
Carnarvon				"		
Devonshire				"		
Hampshire				"		
Roxburgh				"		

Monmouth Class.						
Berwick	9,800	23	537	1903	(Krupp) Belt: am. 4-in.; f. 2-in.; P.D. 2-in.; Barbette 5-in.; Casemates, 4-in.	6-in., fourteen; 12 pr., eight; pom-poms, ten; 3 pr., three; torpedo tubes, two (submerged).
Cornwall				1904		
Cumberland				,,		
Donegal				1903		
Essex				,,		
Kent				,,		
Lancaster				1904		
Monmouth				1903		
Suffolk				1904		
Drake Class.						
Drake	14,100	24	900	1902	(Krupp) Belt: am. 6-in.; f. 2-in.; P.D. 2-in.; Barbette 6-in.; Casemates 6-in.	9·2, two; 6-in., sixteen; 12 pr., twelve; 3 pr., two; machine, six; torpedo tubes, two (submerged).
Good Hope				,,		
King Alfred				1903		
Leviathan				,,		
Cressy Class.						
Aboukir	12,000	21	755	1902	(Krupp) Belt: am. 6-in.; f. 2-in.; P.D. 3-in.; Barbette 6-in., Casemates 5-in.	9·2, two; 6-in.; twelve; 12 pr., twelve; 3 pr., three; machine, four; torpedo tubes, two (submerged).
Bacchante				,,		
Cressy				1901		
Euryalus				1904		
Hogue				1902		
Sutlej				,,		

Note to Armour details: am. = amidships, f. = forward, a. = aft, P.D. = protective deck, C.T. = conning-tower.

CRUISERS.

Name.	Tonnage.	Speed (Knots).	Complement.	Completed.	Armament.
Powerful Class.					
Terrible	14,200	22	840	1898	9·2, two; 6-in., sixteen; 12 pr., fourteen; 3 pr., twelve; torpedo tubes, four (submerged).
Diadem Class.					
Amphitrite	11,000	21	680	1900	6 in., sixteen; 12 pr., twelve; 3 pr., six; Maxims, two; torpedo tubes, two.
Andromeda				"	
Argonaut				"	
Ariadne				"	
Diadem				1899	
Europa				"	
Spartiate				1902	
Edgar Class.					
Crescent*	7,350	20	550	1893	9·2, two; 6-in., ten; 6 pr., twelve; 3 pr., five; Max., two; 22 torpedo tubes, two (submerged).
Edgar				1893	
Endymion				1894	
Gibraltar				"	
Grafton				"	
Hawke				1893	
Royal Arthur*				"	
St. George				1894	
Theseus				"	

Challenger Class.					
Challenger	5,880	21	454	1904	6-in., eleven; 12 pr., eight; Maxims, two; torpedo tubes, two (submerged).
Encounter (Australian Navy).				1906	
Highflyer Class.					
Hermes	5,600	20	456	1900	6-in., eleven; 12 pr., eight; Maxims, two; torpedo tubes, two, (submerged).
Highflyer				"	
Hyacinth				1901	
Arrogant Class.					
Furious	5,750	20	430	1899	6-in., ten; 12 pr., eight; Maxims, two; torpedo tubes, three (two submerged).
Vindictive				1898	
Talbot Class.					
Diana	5,600	19·5	412	1898	6-in., eleven; 12 pr., nine; 3 pr. seven; Maxims, two; torpedo tubes, three.
Dido				"	
Doris				"	
Eclipse				1897	
Isis				1898	
Juno				"	
Minerva				1897	
Talbot				"	
Venus				1898	

* Crescent and Royal Arthur displace 7,700 tons and have one 9·2-in. and twelve 6-in. guns.

CRUISERS—*Continued.*

Name.	Tonnage.	Speed (Knots.)	Complement.	Completed.	Armament.
Chatham Class.					
Birmingham	5,400	25	400	1914	6-in., eight; 3 pr., four.
Chatham				1912	6-in., eight; nine smaller guns.
Dublin				1913	
Lowestoft				1914	
Nottingham				1914	Birmingham, Lowestoft and Nottingham: 6-in., nine.
Southampton				1913	
Bristol Class.					
Bristol	4,800	27	375	1910	6-in., two; 4-in., ten; machine, four.
Glasgow				"	
Gloucester				"	
Liverpool				"	
Newcastle				"	
Weymouth Class.					
Dartmouth	5,250	25	390	1911	6-in., eight; smaller guns, nine.
Falmouth				"	
Weymouth				"	
Yarmouth				1912	

Yarmouth	3,250	25	390	1912	
Colonial.					
Brisbane‡	5,400	25·5	350	?	6-in., eight; Q.F. and machine, nine.
Melbourne				1912	
Sydney				"	
Arethusa Class.					
Royalist	3,750	29	280	1914	6-in., two; 4-in., six; torpedo tubes, two.
Inconstant				"	
Phaeton				"	
Penelope				"	
Galatea				"	
Undaunted				"	
Arethusa				"	
Aurora				"	
Boadicea Class.					
Active	3,440	26	320	1911	4-in., ten; 3 pr., four.
Amphion†				1912	
Bellona*				1912	
Blanche				"	
Blonde				1911	
Boadicea*				1909	
Fearless				1903	

* Bellona and Boadicea carry only six 6-in. guns. † Sunk by German Mine, August 6th, 1914.
‡ Date of completion uncertain.

CRUISERS—*Continued.*

Name.	Tonnage.	Speed (Knots.)	Complement.	Completed.	Armament.
Astræa Class.					
Astræa	4,360	19·5	312	1894	6-in., two; 4·7, eight; 6 pr., eight; 3 pr., one; torpedo tubes, four (above water)
Bonaventure				"	
Cambrian				"	
Charybdis				1895	
Flora				"	
Forte				"	
Fox				"	
Hermione				"	
Apollo Class.					
Æolus	3,400	20	275	1893	6-in., two; 4·7, six; 6 pr., eight; 3 pr., one; machine, four; torpedo tubes, four (above water).
Brilliant				"	
Melpomene				1892	
Latona				1893	
Sappho				"	
Scylla				1892	
Sirius				"	
Terpsichore				"	

Terpsichore				1892	
				"	
				"	

Sentinel Class.					
Adventure				1905	4-in., nine; smaller guns, six; torpedo tubes, two.
Attentive				"	
Foresight				"	
Forward				"	
Pathfinder	2,700	25	268	"	
Patrol				"	
Sentinel				"	
Skirmisher				"	
				"	
Topaze Class.					
Amethyst				1905	4-in., twelve; 3 pr., eight; Maxims, two; torpedo tubes, two.
Diamond				"	
Sapphire	3,000	23	300	"	
Topaze				"	
				"	

TORPEDO-BOAT DESTROYERS.

"M" Class (1913–14) (Displacement, 1,200–1,350 tons; H.P., 27,000; 34 knots; armament, four 4-in.; four 21-in. torpedo tubes):—Manly, Mansfield, Marksman, Mastiff, Matchless, Menace, Mentor, Meteor, Milne, Minos, Miranda, Monitor, Moorsom, Morris, Murray, Myngs.

"L" Class (1912–13) (Displacement, 965 tons; H.P., 25,000; 29 knots; armament, three 4-in.; four 21-in. torpedo tubes):—Laertes, Laforey, Lance, Landrail, Lark, Laurel, Laverock, Lawford, Legion, Lennox, Leonidas, Liberty, Linnet, Llewellyn, Lookout, Louis, Loyal, Lucifer, Lydiard, Lysander.

"K" Class (1912–13) (Displacement, 935 tons; H.P., 24,500; 30–32 knots; armament, three 4-in.; two 21-in. torpedo tubes):—Acasta, Achates, Ambuscade, Ardent, Christopher, Cockatrice, Contest, Fortune, Garland, Hardy, Lynx, Midge, Owl, Paragon, Porpoise, Shark, Sparrowhawk, Spitfire, Unity, Victor.

TORPEDO-BOAT DESTROYERS—*Continued.*

"I" Class (1911) (Displacement, 750–850 tons; H.P., 16,500–20,000; 30–35 knots; armament, two 4-in.; two 12 pdrs.; two 21-in. torpedo tubes):—Acheron, Archer, Ariel, Attack, Badger, Beaver, Defender, Druid, Ferret, Firedrake, Forester, Goshawk, Hind, Hornet, Hydra, Jackal, Lapwing, Lizard, Lurcher, Oak, Phœnix, Sandfly, Tigress.

"H" Class (1910) (Displacement, 780 tons; H.P., 13,500; 27–29 knots; armament, two 4-in.; two 12 pdrs.; two 21-in. torpedo tubes):—Acorn, Alarm, Brisk, Cameleon, Comet, Fury, Goldfinch, Hope, Tarne, Lyra, Martin, Minstrel, Nemesis, Nereide, Nymphe, Redpole, Rifleman, Ruby, Sheldrake, Staunch.

"G" Class (1909) (Displacement, 900–1,000 tons; H.P., 2,100; 27 knots; armament, one 4-in.; two 21-in. torpedo tubes):—Basilisk, Beagle, Bulldog, Foxhound, Grasshopper, Harpy, Mosquito, Grampus, Pincher, Racoon, Rattlesnake, Renard, Savage, Scorpion, Scourge, Wolverine;

"F" Class (1907–09) (Displacement, 865–1,090 tons; H.P., 14,000–15,500; 33–35 knots; armament, five 12 pdrs. (or two 4-in.); two 18-in. torpedo tubes):—Afridi, Amazon, Cossack, Crusader, Gharka, Maori, Mohawk, Nubian, Saracen, Tartar, Viking, Zulu.

"E" Class (1903–08) (Displacement, 530–560 tons; H.P., 7,500; 25 knots; armament, four 12 pdrs.; two 18-in. torpedo tubes):—Arun, Boyne, Chelmer, Cherwell, Colne, Dee, Derwent, Doon, Eden, Erne, Ettrick, Exe, Foyle, Garry, Itchen, Jed, Kale, Kennet, Liffey, Moy, Ness, Nith, Ouse, Ribble, Rother, Stour, Swale, Test, Teviot, Ure, Usk, Waveney, Wear, Welland.

"D" Class (1895–01) (Displacement, 300–400 tons; H.P., 6,000; 30 knots; armament, one 12 pdr.; five 6 pdrs.; two 18-in. torpedo tubes):—Angler, Coquette, Cygnet, Cynthia, Desperate, Fame, Mallard, Stag.

"C" Class (1895–01) (Displacement, 300–400 tons; H.P., 6,000; 30 knots; armament, one 12 pdr.; five 6 pdrs.; two 18-in. torpedo tubes):—Albatross, Avon, Bat, Bittern, Brazen, Bullfinch, Cheerful, Crane, Dove, Electra, Fairy, Falcon, Fawn, Flirt, Flying Fish, Gipsy, Greyhound, Kestrel, Leopard, Leven, Osprey, Ostrich, Mermaid, Racehorse, Recruit, Roebuck, Star, Sylvia, Thorn, Velox, Vigilant, Violet, Vixen, Vulture.

Dove, Electra, Fairy, Falcon, Fawn, Flirt, Flying Fish, Gipsy, Greyhound, Kestrel, Leopard, Leven, Osprey, Ostrich, Mermaid, Racehorse, Recruit, Roebuck, Star, Sylvia, Thorn, Velox, Vigilant, Violet, Vixen, Vulture.

"B" Class (1895–01) (Displacement, 300–400 tons; H.P., 6,000; 30 knots; armament, one 12 pdr.; five 6 pdrs.; two 18-in. torpedo tubes):—Albacore, Arab, Bonetta, Earnest, Express, Griffon, Kangaroo, Lively, Locust, Myrmidon, Orwell, Panther, Peterel, Quail, Seal, Spiteful, Sprightly, Success, Syren, Thrasher, Wolf.

"A" Class (1894–95) (Displacement, 275–350 tons; H.P., 4,500; 27 knots; armament, one 12 pdr.; five 6 pdrs.; two 18-in. torpedo tubes):—Conflict, Fervent, Lightning, Opossum, Porcupine, Ranger, Sunfish, Surly, Zephyr.

TORPEDO BOATS.

Nos. 1–12 (1906–07) Displacement, 247–263 tons; H.P., 3,750; 27–28½ knots; two 12 pdrs.; three 18-in. torpedo tubes.

Nos. 13–36 (1907–08) Displacement, 260–308 tons; H.P., 4,000; 26–27 knots; two 12 pdrs.; three 18-in. torpedo tubes.

Nos. 98, 99, 107–117 (1901–03) Displacement, 178–205 tons; H.P., 2,850–2,900; 25–26 knots; three 3 pdrs.; three torpedo tubes.

Nos. 88–97 (1893–95) Displacement, 112–172 tons; H.P., 1,500–2,500; 23–24½ knots; three 3 pdrs.; three torpedo tubes.

SUBMARINES.

Class.	No. in Class.	Date of Building.	Speed in Knots.		Displacement.	Horse Power.	Tubes.	Guns.
A -	9	1904–06	Submerged	9–12 surface	200 Tons	150–500	2	
B -	10	1904–06	"	9–13 "	314 "	189–600	2	
C -	37	1906–09	"	10–14 "	320 "	300–600	2	
D -	8	1910–11	"	10–16 "	580 "	550–1,200	3	
E -	16	1911–13	"	10–16 "	800 "	1,950	4	Two 3-in.
F -	6	1913–14	"	12–20 "	1,000 "	5,000	6	Two 3-in.

THE GERMAN NAVY.

BATTLESHIPS (Dreadnought Type).

Name.	Tonnage.	Spd. (kts.)	Complement.	Completed.	Armonr.	Armament.
*Ersatz Würth** - - - "*T*"* - - - -	29,000	23	—	1916		15-in., eight; 5·9-in., sixteen.
Markgraf - - - Grosser Kurfürst - - König - - - - *Kronprinz*† - - -	25,600	21	1,130	1914 " " 1915	Belt: 13¾-in. -	12-in., ten; 5·9-in., fourteen; 3·4-in., ten; torpedo tubes five.
König Albert - - Kaiserin - - - F. der Grosse - - Kaiser - - - P. Regent Luitpold -	24,312	21	1,080	1913 " 1912 " 1913	Belt: 13¾-in.; P.D. 3-in.; Turrets, 12-in.; C.T. 12-in.	12-in., ten; 5·9-in.l fourteen; 3·4-in., twelve; torpedo tubes, five.
Heligoland - - - Oldenburg - - - Ostfriesland - - - Thüringen - -	22,435	20·5	1,106	1911 1912 1911 "	Belt: 11¾-in. P.D. 3-in.; Turrets, 11-in.; C.T. 12-in.	12-in., twelve; 5·9-in., fourteen; 3·4-in., fourteen; torpedo tubes, six.

* To be completed 1916. † To be completed

Heligoland Oldenburg Ostfriesland Thüringen	22,435	20·5	1,106	1911 1912 1911 ,,	Belt : 11¾-in. P.D. 3-in. ; Turrets, 11-in. ; C.T. 12-in.	12-in., twelve; 5·9-in., fourteen ; 3·4-in., fourteen ; torpedo tubes, six.

* To be completed 1916. † To be completed 1915.

Nassau Posen Rheinland Westfalen	18,600	19	966	1909 1910 ,, 1909	(Krupp) Belt : am., 11-in. ; f. 6-in. ; a. 4-in. ; P.D. 4-in. ; Barbette, 12-in. ; C.T. 12-in.	11-in., twelve ; 5·9-in., twelve ; 3·4-in., sixteen ; torpedo tubes, six.

BATTLESHIPS (pre-Dreadnought Type).

Deutschland Hannover Pommern Schlesien Schleswig-Holstein	13,000	18	743	1906 1907 ,, 1908 ,,	(Krupp) Belt ; a.m. 9¾-in. ; f. 4-in. ; a. 4-in. ; P.D. 3-in. ; Barbette, 11-in. ; casemates 6½-in. ; C.T. 12-in.	11-in., four ; 6·7-in., fourteen ; 3·4-in., twenty ; torpedo tubes, six.
Braunschweig Elsass Lothringen Hessen Preussen	13,000	18	743	1904 ,, 1906 1905 ,,	(Krupp) Belt : a.m 9-in. ; f. 4-in. ; a. 4-in. ; P.D. 3-in. ; Barbette, 11-in. ; casemates 6-in. ; C.T. 12-in.	11-in., four ; 6·7-in., fourteen ; 3·4-in., eighteen ; torpedo tubes, six.
Mecklenburg Wettin Wittelsbach Schwaben Z Zähringen	11,650	18	683	1903 1902 ,, 1903 1902	(Krupp) Belt ; a.m. 9-in. ; f. 4-in. ; a. 4-in. ; P.D. 5-in. ; Barbette 10-in. ; casemates 6-in. ; C.T. 10-in.	9·4-in., four ; 6-in., eighteen ; 15-pdr., twelve ; torpedo tubes, six.

BATTLESHIPS (pre-Dreadnought Type)—*Continued.*

Name.	Tonnage.	Spd. (kts.)	Complement.	Completed.	Armour.	Armament.
K. Barbarossa K. Friedrich III. K. Karl der Grosse K. Wilhelm II. K. Wilhelm der Grosse	10,600	18	622	1901 1898 1901 1900 1901	(Krupp) Belt; am. 12-in.; f. 4-in.; a. 4-in.; P.D. 3-in.; Barbette, 10-in; casemates, 6-in.; C.T. 10-in.	9·4-in., four; 5·9-in., fourteen; 3·4-in., fourteen; torpedo tubes, five.

BATTLE-CRUISERS.

E. Hertha † *E. Victoria Louise* ‡	28,000	27				12-in., eight; 5·9-in., twelve.
Derfflinger *Lützow* *	26,200	26½	1,125	1914 1915	Belt, 12-in.	12-in., eight; 5·9-in., twelve; 3·4-in., twelve; torpedo tubes, four.
Seydlitz	24,600	27	1,108	1913	Belt, 12-in.; P.D., 2½-in.	11-in., ten; 5·9-in., twelve; 3·4-in., twelve; torpedo tubes, four.

‡ To be completed 1917. † To be completed 1916. * To be completed 1915.

						twelve; 3·4-in., twelve; torpedo tubes, four.

‡ To be completed 1917. † To be completed 1916. * To be completed 1915.

Goeben - - - Moltke - - -	22,640	28	1,013	1912 1911	Belt, 11-in.; P.D., 2½-in.	11-in., ten; 5·9-in., twelve; 3·4-in., twelve; torpedo tubes, four.
Von der Tann - -	19,100	28	850	1910	Belt: 10-in.; P.D., 2½-in.	11-in., eight; 5·9-in., ten; 3·4-in., sixteen; torpedo tubes, four.

ARMOURED CRUISERS.

Blücher - - -	15,550	25½	888	1909	(Krupp); a.m 7-in.; f. 4-in.; a. 4-in.; P.D. 2½-in.	8·2-in., twelve; 5·9-in. eight; 3·4-in., sixteen; torpedo tubes, four.
Gneisenan - - - Scharnhorst - - -	11,500	22½	764	1908 1907	(Krupp) Belt: am. 6-in.; f. 3-in.; a. 5-in.; P.D. 2-in.; Barbette, 6-in.; Battery, 4-in.; C.T., 8-in.	8·2-in., eight; 5·9-in., six; small guns, eighteen; torpedo tubes, four (submerged.)
Fürst Bismarck - -	10,570	19	594	1900	(Krupp) Belt: am. 8-in.; f. 4-in.; a., 4-in.; P.D., 2-in.; Battery, 8-in.; casemates, 4-in.; C.T., 8-in.	9·4-in., four; 5·9-in., twelve; 3·4-in., ten; torpedo tubes, six.

NOTE TO ARMOUR.—am. = amidships; f. = forward; a. = aft; P.D. = Protective decks; C.T. = conning tower.

ARMOURED CRUISERS—*Continued.*

Name.	Tonnage.	Spd. (kts.)	Complement.	Completed.	Armour.	Armament.
Roon - - - - Yorck - - - -	9,350	21	633	1905 1905	(Krupp) Belt: am., 4-in.; f., 3-in.; a., 3-in; P.D., 2¾-in.; Barbette, 6-in.; Battery, 4-in.; C.T., 6-in.	8·2-in., four; 6-in., ten; 3·4-in., fourteen; torpedo tubes four.
Prinz Adalbert - - Friedrich Karl - -	8,851	21	591	1903 1903	(Krupp) Belt: am., 4-in.; f., 3-in.; a., 3-in.; P.D., 2-in.; Trt., 6-in.; Battery, 4-in.; G.T., 9-in.	8·2-in., four; 6-in., ten; torpedo tubes, four.
Prinz Heinrich - -	8,760	20	567	1902	(Krupp) Belt: a.m, 4-in.; f., 2-in.; a., 2-in.; P.D., 2-in.; Trt., 6-in.; Battery, 4-in.; C.T., 6-in.	9·4-in., two; 6-in., ten; 3·4-in., ten; torpedo tubes, four.

					2-in.; Trt., 6-in.; Battery, 4-in.; C.T., 6-in.

CRUISERS.

Name.	Displacement.	Speed (Knots).	Complement.	Completed.	Armament.
Kaiserin Augusta	6,000	21½	439	1894	6-in., twelve; 3·4-in., eight; torpedo tubes, three.
Freya	5,600	19	450	1898	8·2, two; 6-in., six; 3·4, fourteen; torpedo tubes, three (submerged).
Hansa				1899	
Hertha				1898	
Victoria Luise				,,	
Vineta				1899	
E. Gefion *	5,500	28	—	—	5·9-in., ten.
E. Hela *					
Rostock	4,870	28	373	1913	4-in., twelve; machine, two; torpedo tubes, two.
Karlsruhe				,,	
Graudenz				1914	
Regensburg				,,	
Breslau	4,520	27½	370	1912	4-in., twelve; torpedo tubes, two.
Magdeburg				,,	
Strassburg				,,	
Stralsund				,,	

* To be completed 1915.

CRUISERS—*Continued.*

Name.	Displacement.	Speed (Knots).	Complement.	Completed.	Armament.
Augsburg	4,281	26	379	1910	4-in., twelve; torpedo tubes, two.
Köln				1911	
Kolberg				1910	
Mainz				1909	
Dresden	3,620	24½	361	1907	4-in., ten; torpedo tubes, two.
Emden				1908	
Koenigsburg	3,420	23½	322	1907	4·1, ten; torpedo tubes, two.
Nurnburg				1908	
Stettin				"	
Stuttgart				"	
Bremen	3,200	22½	300	1904	4·1, ten; torpedo tubes, two.
Berlin				"	
Danzig				1906	
Hamburg				1904	
Leipzig				"	
Lübeck				1905	
Munchen				"	

Munchen - - -				1905	
				"	
Arcona - - - -	2,660	22	281	1903	4·1, ten; torpedo tubes, two.
Frauenlob - - -				"	
Undine - - - -				1903	
Amazone - - -	2,630	21	275	1901	4·1, ten; torpedo tubes, two.
Ariadne - - - -				"	
Gazelle - - - -				1898	
Medusa - - - -				1901	
Niobe - - - -				1899	
Nymphe - - -				1901	
Thetis - - - -				"	
Gefion - - - -	3,750	19	300	1894	4·1, ten.
Hela - - - -	2,000	19½	191	1896	3·4-in., four; smaller guns, six; torpedo tubes, two.

TORPEDO-BOAT DESTROYERS.

12 Boats, S 31–36, V 25–30 (1913-14), displacement 570 tons; speed, 32½ knots; armament: two 3.4-in., four machine guns, five torpedo tubes. Complement, 75.

12 Boats, S 12–24 (1912-13), displacement, 555 tons; speed, 32½ knots; armament: two 3.4-in., two machine guns, four torpedo tubes. Complement, 73.

TORPEDO-BOAT DESTROYERS—*Continued.*

12 Boats, V 1–6, G 7–12 (1911-12), displacement, 560 tons; speed, 32½ knots; armament: two 3.4-in., two machine guns, four torpedo tubes. Complement, 73.

12 Boats, G 192–197, V 186–191 (1910-11), displacement, 640 tons; speed, 32 knots; armament: two 3.4-in., two machine guns, four torpedo tubes. Complement, 83.

12 Boats, V 180–185, S 176–179, G 174–175 (1909-10), displacement, 635 tons; speed, 32 knots; armament, two 3.4-in.; two machine guns, four torpedo tubes. Complement, 83.

11 Boats, G 169–170, G 173–173, S 165–168, V 162–164 (1908-09), displacement, 610 tons; speed, 30 knots; armament, two 3.4-in., two machine, three torpedo tubes. Complement, 83.

12 Boats, V 150–161 (1907-08), displacement, 545 tons; speed, 30 knots; armament, two 3.4-in., two machine guns, three torpedo tubes. Complement, 83.

12 Boats, S 138–149 (1906-07), displacement, 515 tons; speed, 30 knots; armament: one 3.4-in., five smaller guns, three torpedo tubes. Complement, 80.

1 Boat, G 137 (1906), displacement, 565 tons; speed, 33 knots; armament: one 3.4-in., five smaller guns, three torpedo tubes. Complement. 80.

47 Boats, G 132–136 (1905-06), **S 126–151** (1904-05), **S 120–125** (1903-04), **S 114–119** (1902-03), **G 108–113** (1901-02), **S 102–107** (1900-01), **S 90–101** (1898-1900), displacement, 390-475 tons; speed, 26-27 knots; armament: three 3-pdrs., two machine, three torpedo tubes. Complement, 60.

8 Boats, D 3–10 (1887-98), displacement, 290-345 tons; speed, 22-28 knots; armament: three (or five) 3-pdrs., three torpedo tubes. Complement, 50-60.

1 Boat "Taku" (1898), displacement, 270 tons; speed, 30 knots; armament, two 3-pdrs.; two torpedo tubes. Complement, 49.

4 Boats "Takú" (1898), displacement, 270 tons; speed, 30 knots; armament, two 3-pdrs.; two torpedo tubes. Complement, 49.

SUBMARINES.

2 Boats, U 1 and U 2 (1906-08), displacement, 197-236 tons; speeds, 8-10 knots; armament, two torpedo tubes.

6 Boats, U 3–U 8 (1908-11), displacement, 240-300 tons; speeds, 8-12 knots.; armament: two torpedo tubes.

12 Boats, U 9–U 20 (1910-12), displacement, 450 tons; speeds, 9-15 knots; armament, three torpedo tubes.

16 Boats, U 21–U 36 (1912-14), displacement, 800 tons; speeds, 18-12 knots; armament: two guns, four (or five) torpedo tubes.

MINELAYERS.

"**Nautilus**" (1906), displacement, 1,900 tons; speed, 20 knots; armament, eight 3.4-in., 400 naval mines.

"**Albatross**" (1907), displacement, 2,120 tons; speed, 20 knots; armament: eight 3.4-in., 400 naval mines.

"**Pelikan**" (1890), displacement, 2,300 tons; speed, 15 knots.; armament: four 3.4-in., 300 naval mines.

THE FRENCH NAVY

BATTLESHIPS.

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Courbet	23,100	20	1,000	1913	Belt: am. 10½-in.; f. 7-in.; a. 7-in.; P.D. 3½-in.	12-in., twelve; 5·5-in., twenty-two; eight smaller; torpedo tubes, three.
Jean Bart				"		
France				1914		
Paris				"		
Condorcet	18,400	19	680	1911	Belt: am. 10-in.; f. 6-in.; a. 6-in.; P.D. 3-in.; Barbette 12-in.; C.T. 12-in.	12-in., four; 9·4-in., twelve; 3-in., sixteen; torpedo tubes, two.
Danton				"		
Diderot				"		
Mirabeau				"		
Vergiaud				"		
Voltaire				"		
Démocratie	14,870	18	800	1907	Belt: 11-in.; P.D. 2½-in.; Turret 12-in.	12-in., four; 7·6, ten; 4-in., eight; smaller, twenty-six; torpedo tubes, five (two submerged).
Justice				"		
Vérité				1908		
Patrie	14,865	18	800	1906	Belt: 11-in.; P.D. 3-in.; Turret 12½-in.	12-in., four; 6·4, eighteen; smaller, twenty-five; torpedo tubes, five (two submerged).
République				"		

					12½-in.	twenty-five; torpedo tubes, five (two submerged).
Suffren -	12,730	18	750	1903	Belt: 12-in.; P.D. 3-in.; Turret 12-in.	12-in., four; 6·4, ten; 4-in., eight; smaller, twenty-four; torpedo tubes, four (two submerged).
Charlemagne - - - Gaulois - - - - St. Louis - -	11,000	18	650	1899 ,, 1900	(H.) Belt: am. 12¾-in.; f. 10-in.; a. 10-in.; P.D. 2¾-in.; Barbette 15¾-in.	12-in., four; 5·5, ten; 4-in., eight; smaller, 26; torpedo tubes four (submerged).
Bouvet - - - -	12,000	17½	650	1898	(H.) Belt: am. 15¾-in.; f. 12-in.; a. 10-in.; P.D. 3½-in.	12-in., two; 10·8, two; 5·5, eight; 4-in., eight; smaller, thirty; torpedo tubes, four.
Masséna -	11,700	18	620	.	(H.) Belt: am. 17¾-in.; f. 10-in.; a. 10-in.; P.D. 3½-in.	12-in., two; 10·8, two; 5·5, eight; 4-in., eight; torpedo tubes, four.
Charles Martel -	11,880	18	650	1896	(C.) Belt: am. 17¾-in.; f. 13½-in.; a. 11-in.; P.D. 2¾-in.	12-in., two; 10·8, two; 5·5, eight; torpedo tubes, six.
Carnot - -	12,000	18	650	1896	(C.) Belt: am. 17¾-in.; f. 10-in.; a 10-in.; P.D. 2¾-in.	12-in., two; 10·8, two; 5·5, eight; smaller, twenty-two; torpedo tubes, four.

BATTLESHIPS—*continued.*

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Jauréguiberry - -	11,650	18	600	1896	(C.) Belt: am. 17¾-in.; f. 9-in.; a. 9-in., P.D. 2½-in.	12-in., two; 10·8, two; 5·5, eight; smaller, twenty; torpedo tubes, six.

ARMOURED CRUISERS.

Leon Gambetta - - Jules Ferry - - - Victor Hugo - -	12,350	22	750	1904 1906 "	(Krupp) Belt: am. 6¾-in.; t. 3-in., a. 3-in.; P.D. 2½-in.; Barbette 6-in.; casemates 4 in.; C.T. 8-in.	7·6, four; 6·4, sixteen; smaller twenty-four; torpedo tubes, five (two submerged).
Amiral Aube - - - Coude - - - - Gloire - - - - Marseillaise - -	10,000	21	600	1904 " 1902 1903	(Krupp) Belt: am. 6¾-in.; f. 4-in.; a. 4-in.; P.D. 2½-in.; Turret, 8-in.; cas. 4-in.; C.T. 9-in.	7·6, two; 6·4, eight; 4-in., six; smaller, twenty; torpedo tubes, five.
Dupetit Thouars - Amiral Gueydon - - Montcalm - - -	9,519	21	580	1903 1902 "	(H. N.) Belt; am. 6¾-in.; f. 4-in.; a. 4-in.; C.T. 4-in.	7·6, ten; 6·4, eight; 4-in., four; smaller, 22.

Montcalm - - -	9,519	21	580	1902	6¾-in.; f. 4-in.; a. 4-in.; C.T. 4-in.	7·6, ten; 6·4, eight; 4-in., four; smaller, 22.
Jeanne d'Arc - - -	11,270	22	620	1903	(H.) Belt: am. 6-in.: f. 5-in.; a. 3-in.; P.D. 2½-in.: Turret 7½-in.; cas. 5-in.; C.T. 6-in.	7·6, two; 5·5, fourteen; smaller, twenty; torpedo tubes, two (submerged).
Desaix - - - Dupleix - - - Kleber - - - -	7,700	21	500	1904 1903 1904	(Krupp) Belt: am. 4-in.; f. 3-in.; a. 3-in.; P.D. 2¾-in.; Turret 4-in.; C.T. 6-in.	6·4, eight; 4-in., four; smaller, sixteen; torpedo tubes, two (above water).

Note to Armour.—am. = amidships; f. = forward; a. = aft; P.D. = protective deck; C.T. = conning tower.

Protected Cruisers: *D'Entrecasteaux* (completed 1898), 7,990 tons, 19½ knots, armament: 2–9·4 in., 12–5·5 in., 16 smaller, 6 torpedo tubes. *Gloire* (1902), 8,150 tons, 23 knots, 2–6·4 in., 6–5·5 in., 15 smaller, 2 torpedo tubes. *Jurien de la Gravière* (1901), 5,590 tons, 22 knots, 8–6·4 in., 10 smaller, 2 torpedo tubes. *D'Estrées* (1900) 2,421 tons, 20½ knots, 2–5·5 in., 4–3·9 in., 3 torpedo tubes. *Du-Chayla* (1897) 3,890 tons, 20 knots, 6–6·4 in., 4–3·9 in., 2 torpedo tubes. *Lavoisier* (1899), 2,285 tons, 20 knots, 4–5·5, 2–3·9 in., 2 torpedo tubes. *Friant* (1894), 3,882 tons, 19 knots, 6–6·4 in., 4–3·9 in., 2 torpedo tubes. Also: *Alger*, *Sfircoff*, *Cosmao*, very old ships, of small fighting value.

Destroyers: 80 boats (1901–1914), 310–710 tons, 25–31 knots, armed with 9 pdrs. or 3·4-in., guns 2–4 torpedo tubes.

Torpedo-Boats: 90–100 boats (1890–1909), 90–185 tons, 24–30 knots, armed with small quick-firers and 2–3 torpedo tubes.

Submarines: 75 boats (1903–14), 106–740 tons, 12–18 knots (surface), armed with 4–8 torpedo tubes.

THE RUSSIAN NAVY

BATTLESHIPS—PRE-DREADNOUGHTS

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
A. Pervosvanni - -	17,400	18	900	1911	(Krupp) Belt: a.m. 8½-in.; f. 5, a. 4-in.; P.D. 3-in.; Barbette 12, Bty 5, C.T. 8-in.	12-in., four; 8-in., twelve; 47, twenty; torpedo tubes, five.
Imperator Pavel I - -				"		
Slava - - - - -	13,500	18	700	1905	(Krupp) Belt: am. 9-in.; f. 4, a. 4, P.D. 4-in.; Barbette 10, T. 6, C.T. 10-in.	12-in., four; 6-in., twelve; smaller, twenty-five; torpedo tubes, four (two submerged).
Cesarevitch - - -	12,912	18	750	1903	(Krupp) Belt: a.m. 10, f. 4, a. 4, P.D. 4-in.; Barbette 11-in.; Turret 6-in.; C.T. 10-in.	12-in., four; 6-in., twelve; 12-pr., twenty; smaller thirty; torpedo tubes, three (two submerged).

					bette 11-in.; Turret 6-in.; C.T. 10-in.	thirty; torpedo tubes, three (two submerged).
*Panteleimon - - *Ivan Zlatoust - -	12,733	16	700	1911 1910	(Krupp) Belt: am. 9, f. 2, a. 2, P.D. 2½-in.; Barbette 12-in., Battery 5-in., C.T. 10-in.	12-in., four; 6-in., sixteen; 12-pr., fourteen; smaller, sixteen; torpedo tubes, five (two submerged).
*Evstafi - - -	12,500	17	700	1911	(H.) Belt: am. 16-in.; P.D. 3-in.; Barbette 16-in.; Battery 5-in.; C.T. 12-in.	12-in., four; 8-in., four; 6-in., twelve; smaller, twenty-two.
*Rostislav - - -	9,000	16½	600	,,	(H.) Belt: 15, P.D. 3-in.; Barbette 15-in.; Battery 6, C.T. 10-in,	10-in., four; 6-in., eight; smaller, thirty; torpedo tubes, four (above water).
*G. Pobiedonosetz -	11,200	16	550	1895	(C.) Belt: am. 18-in.; f. 10-in.; a. 10-in.; Barbette 12-in.; C.T. 16-in.	12-in., six; 6-in., seven; smaller, twenty; torpedo tubes, six (under water).

[Four Dreadnoughts were nearly complete when war opened.]

ARMOURED CRUISERS.

Rurik - - - -	15,000	22	800	1907	(Krupp) Belt: a.m. 6, f. 4, a. 3, P.D. 1½-in.; Barbette 8-in., Battery 3, C.T. 8-in.	10-in., four; 8·8, eight; 4·7, twenty: torpedo tubes, two (submerged).

ARMOURED CRUISERS—*continued.*

Name.	Tonnage.	Speed (kts.)	Com'-ment.	Com-pleted.	Armour.	Armament.
Admiral Makaroff Pallada Bayan	7,900	21	570	1908 1910 "	(Krupp) Belt: a.m. 8-in., f. 4; a. 3; P.D. 2-in.; Barbette 7, Battery 3½, C.T. 6½.	8-in., two; 6-in., eight; smaller, twenty; torpedo tubes, two (submerged).
Gromoboi	12,400	20	800	1900	(H.) Belt 6-in.; P.D. 2-in.; Casemates 6-in.; C.T. 10-in.	8-in., four; 6-in., sixteen; 12-pr., twenty; smaller, twenty-four; torpedo tubes, two.
Rossia	12,130	20	750	1898	(H.) Belt: a.m. 10-in.; f. 5, a. 4, P.D. 2½-in.; Bulkheads 6, Casemates 2, C.T. 8-in.	8-in., four; 6-in., sixteen; 12-pr., twelve; smaller, thirty-six; torpedo tubes, six (above water).

Protected Cruisers: *Ashold* (completed 1901), 5,905 tons, 23 knots, armament: 12–6 in., 26 smaller guns, 6 torpedo tubes. *Diana and Aurora* (1902), 6,700 tons, 20 knots, armament: 8–6 in., 30 smaller guns, 4 torpedo tubes. *Oleg, Kagui* (*), *Pamyat Merkurya* (*) (1904–05), 6,645 tons, 24 knots, 12–6 in., 26 smaller guns, 2 torpedo tubes. *Zemichug* (1903), 3,106 tons, 23 knots, 8–4·7 in., 12 smaller guns, 2 torpedo tubes. *Almas* (*) (1905) 3,285 tons, 19 knots, 3–4·7 in., 14 smaller, 2 torpedo tubes.

Destroyers: There are 140 destroyers (1895–1913), 220–1050 tons, 25–27 knots, armed with 12-pdr. or 4-in. guns and 3–5 torpedo tubes. Of this total, 31 boats are in the Black Sea or Far East.

Torpedo-Boats: **29 boats** (1897–1902), 118–186 tons, 24–30 knots; armed with small quick-firers and 1–3 torpedo tubes.

Submarines: **14 boats** (1904–10) 150–370 tons, 9–16 knots (surface), 2–4 torpedo tubes.

* All these ships are in the Black Sea.

Torpedo-boats: 10 boats (1909–1912), 110–160 tons, 24–30 knots, armed with small quick-firers and 1–3 torpedo tubes.

Submarines: 14 boats (1904–10) 150–370 tons, 9–16 knots (surface), 2–4 torpedo tubes.

* All these ships are in the Black Sea.

THE AUSTRO-HUNGARIAN NAVY.

BATTLESHIPS.

Name.	Tonnage.	Speed (kts.)	Complement.	Completed.	Armour.	Armament.
Prinz Eugen Tegetthoff Viribus Unitis	20,000	22	950	1912 1914 1913	Belt: am. 11-in.; f. 7-in.; a. 6-in.; gun positions and C.T. 12-in.	12-in., twelve; 5·9, twelve; smaller, 22.
Erz. Ferdinand Radetzki Zrinyi	14,500	20·5	816	1910 1911 "	(Krupp) Belt: am. 9-in.; f. 6-in.; a. 4-in.; gun positions and C.T. 10-in.	12-in. four; 9·4, eight; 3·9, twenty; 3 torpedo tubes (submerged).
Erzherzog Friedrich Erz. Karl Erz. Ferdinand Max	10,500	20	875	1906 " 1907	(Krupp) Belt: am. 8½-in.; P.D. 2½-in.; Barbette 9½-in.; Baty. 6-in.; C.T. 8½-in.	9·4 four; 7·6, 3-in., fourteen, twelve; smaller, 28; torpedo tubes, two (submerged).
Habsburg Arpad Badenberg	8,300	19	630	1903 1904 1903	(Krupp) Belt; am. 8½-in.; f. 2-in.; a. 2-in.; Barbette, 8-in.; cas. 6, C.T. 8-in.	9·4 three; 6-in., twelve; smaller, 28; torpedo tubes, two (submerged).

THE AUSTRO-HUNGARIAN NAVY—*continued.*

Cruisers: *Sankt Georg* (1906), 7,180 tons, 21 knots, armour belt 6½-in., armament: 2–9·4 in., 5–7·6 in., 4–6 in., 17 smaller, 2 torpedo tubes. *Kaiser Karl VI.* (1900), 6,150 tons, 20 knots, armour belt 8½ in., armament: 2–9·4 in., 8–6 in., 28 smaller, 2 torpedo tubes. *Kaiserin Maria Theresa* (1895), 5,185 tons, 19 knots, armour belt 4-in., armament: 2–7·6 in., 8–6 in., 20 smaller, 4 torpedo tubes. *Admiral Spaun, Saida, Helgoland, Novara* (1910–14), 3,500 tons, 27 knots, 9–4 in. (*Spaun*, 7–4 in.), 2 torpedo tubes. *Aspern, Zenta, Szigetvar* (1899–1901) 2,300 tons, 20 knots, 8–4·7 in., 12 smaller, two torpedo tubes. *Kaiser Franz Josef, Kaiserin Elisabeth* (1890–91) 3,966 tons, 19 knots, 8–6 in., 20 smaller, 4 torpedo tubes. *Panther, Leopard, Tiger* (1887–89), 1,600 tons, 18½ knots, 4–4·7 in.

Destroyers: 18 boats (1905–1913), 390–800 tons, 28–32 knots, armed with 12 pdr. or 4-in. guns, 2 torpedo tubes.

Torpedo-Boats: 54 boats (1906–1914), 110–250 tons, 26–28½ knots, armed with small guns and 2 torpedo tubes.

Submarines: 6 boats (1909–1910), 270 tons, 12 knots (surface), 2–3 torpedo tubes.

JAPANESE NAVY

Dreadnoughts: *Kawachi, Settsu* (completed 1912), 20,800 tons, 20½ knots, 12-in. belt, armament: 12–12 in., 10–6 in., 8–4·7 in., 12 smaller, 5 torpedo tubes. Complement, 960.

Satsuma, Aki (1910–11), 19,500 tons, 20 knots, 9-in. belt, armament: 4–12 in., 12–10 in., 8–6 in. (Satsuma has 12–4·7 in. instead), 5 torpedo tubes. Complement, 900.

Battle Cruisers: *Kongo, Hiyei* (1913–14), 27,500 tons, 27 knots, belt 10 in., armament: 8–14 in., 16–6 in., 16 smaller, 8 torpedo tubes. Complement, 1,100.

Other Armoured Ships: 11 Battleships (Aki, Satsuma, Kashima, Katori, Iwami, Mikasa, Hizen, Suwo, Sagami, Asahi, Shikishima, Fuji, Tango) completed 1898–1906, displacement 10,960–16,400 tons, 17–18½ knots, and armed with 12-in. ,10-in., and 6-in. guns, also torpedo tubes. Thirteen Armoured Cruisers (Kurama, Ibuki, Ikoma, Tsukuba, Asama, Tokiwa, Idzumo, Iwate, Azuma, Yakuba, Aso, Kasūga, Nisshin) completed 1899–1910, displacement 7,700–14,600 tons, 20–24 knots, armed with 12-in. or 8-in. guns, 6-in. and 4·7-in. quick-firers, and torpedo tubes.

Protected Cruisers: 20 Vessels (Chikuma, Hirado, Yahagi, Tone, Yodo, Mogami, Otowa, Tsushima, Nūtaka, Soya, Tsuguru, Kasagi, Chitose, Akashi, Suma, Akitsushima, Itsukushima, Hashidate, Chiyoda, Yaeyama), 1890–1912, 1,230 tons–6,600 tons, speed 18–25 knots.

There are also 54 destroyers (completed 1898–1913), 42 torpedo-boats (1900–1905), and 15 submarines (1904–1914).

BRITISH.

Calibre of Gun. in.	Weight (tons).	Length (in calibres).	Weight of Projectile (in lbs.)	Muzzle Velocity (in foot-seconds)	Muzzle Energy (in foot-tons).
15	96	45	1,950	2,500	84,510
13·5	76	45	1,250 1,400	2,800	69,000
12	68	50	850	2,950	51,290
12	58	45	850	2,900	49,500
12	50	40	850	2,580	39,250
10	34	45	500	3,000	30,000
9·2	28	50	380	3,000	23,000
9·2	25	40	380	2,350	14,520
7·5	15½	50	200	3,000	12,500
7·5	14	45	200	2,600	9,300
6	8	50	100	3,000	6,000
6	7½	45	100	2,750	5,250
6	7	40	100	2,200	4,300
4·7	2	40	40	2,188	—
4	2	50	31	3,000	1,900

GERMAN.

15	82½	45	1,675	2,920	99,000
12	47	50	860	3,084	56,660
12	42½	45	860	2,920	50,830
11	36	50	661	3,084	43,600
11	32¾	45	661	2,920	39,000
11	29	40	661	2,756	34,800
9·4	18	40	419	2,750	22,000
8·2	15	50	275	3,084	18,170
8·2	13¾	45	275	2,900	16,300
8·2	12	40	275	2,750	14,500
6·7	6¾	40	154	2,756	6,452
5·9	5	45	101	2,920	5,856
5·9	4½	40	101	2,756	5,200
4·1	1½	40	35	2,750	1,890
3·4	1·1	40	21	2,750	—

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INDEX