GRAND FLEETS

by Daniel Kast & Kevin Smith

Grand Fleets

by Daniel Kast & Kevin Smith

MJ XII
MJ12GAMES.com

TABLE OF CONTENTS

1 INTRODUCTION

Grand Fleets is a game of *fin de siècle* naval combat. Covering the half-century roughly from 1889 through 1939, it encompasses some of the more intriguing developments in warfare at sea. Several scenarios are given in the back of this book, covering everything from the battle of Yalu River to Dogger Bank.

We hope you have as much fun playing *Grand Fleets* as we've had developing it. Throughout the rules, we have given some insights as to why we made particular decisions; if you don't agree with us, feel free to muck about with the system—it's your game, after all. We ask only that you keep us up-to-date with your progress; you can reach us via our web site at www.mj12games.com.

Anyway, enough talk. Happy gaming!

DSK
Denver, CO
February 2004

I must admit that, while I have always enjoyed naval wargaming, before we started this project I really knew very little of the history of naval warfare. Being a part of this project has been a real learning experience, with respect to both the ships which fought, and with the men who crewed them. In putting together the scenarios included in the game, I tried to cover a range of engagements which were representative of the era.

Hopefully I've been successful in doing this, and I also hope this game will present you with a few of the factors the ships and men which participated in these engagements had to endure to persevere.

KLS
Wichita, KS
February 2004

1.1 **Players**. *Grand Fleets* is intended as a two-player game, with each taking command of all the ships on one side of a battle. However, there is no reason why more players cannot be involved; simply divide the ships available among the players on a given side. It is also possible to

conduct a game in which there are more than two sides represented.

1.1.1 *Referee*. Another way to get more people involved is to include a "referee", who instead of controlling part of the battle is responsible for the game itself—setting up the scenario to be played, making sure that everyone plays nice, arbitrating any rules disputes, and otherwise ensuring that fun is had by all. A referee is also essential for "blind" play, in which the positions and capabilities of ships are hidden from those on the opposing side until and unless they are in a position to know this information "realistically". Of course, in such a game, it is a requirement that everyone trust and respect the referee's judgment.

These rules assume that no referee is present.

1.2 **Scale**. Because this game is an historical simulation, the values used have a direct relationship to real-world measurements.

1.2.1 *Distance*. **Grand Fleets** is played on a hex-grid; each hex represents an area roughly one nautical mile (6080 ft) across. Assuming 1.5" hexes, this gives a "ground" scale of 1:48,640.

1.2.2 *Time & Speed*. Each game turn represents 10-15 minutes of real time; at this time scale, a speed of one hex per turn is equivalent to about five knots (a knot is one nautical mile per hour).

1.2.3 *Altitude*. In some situations, the altitude of a given model relative to the game board is important. Altitude is given as a number; each level of altitude is equal to a height of one nautical mile (6080 ft). An altitude of zero (0) indicates that the aircraft is just above the surface, typically in order to drop bombs or launch a torpedo.

1.3 **Materials**. In addition to this rulebook, several items are required in order to play **Grand Fleets**, which should be easily available from the shop where you purchased this book.

1.3.1 *Playing Surface*. **Grand Fleets** is played on a hex-grid, typically no less than 30 hexes wide and at least 20 hexes deep, in order to simplify movement and range-finding. A grid with numbers in each hex is very useful for hidden movement, such as with submarines.

This book does not include a hex-map; however, many different items are currently in production, and should be available at your local hobby or game shop. Additionally, **Grand Fleets** can be played on an open tabletop, without hexes, with only minimal changes to these rules (see p. 40).

1.3.2 *Playing Pieces*. Every ship in the game must be represented on the hex-grid by a playing piece of some kind, typically a miniature model. Some scales of naval miniatures commonly available are 1:2400, 1:3000, and 1:6000 (for reference purposes, model railroading N Scale is between 1:148 and 1:160, while HO Scale is 1:87). Any of these would be appropriate, keeping in mind ships might be too big for the hex-grid at 1:2400 scale (HMS *Dreadnought* would be over 2.5" long). Typically, there will only be one ship in a given hex at a time; however, stacking is possible (see p. 17), so keep this in mind when choosing your playing pieces.

1.3.3 *Dice*. You will need a number of ten-sided dice. This type of die can usually be found at any gaming or hobby store. Most rolls in **Grand Fleets** are made using a single die; however, you will occasionally be asked to roll "Xd". This means you should roll "X" number of dice and add the results together.

1.3.4 *Other Materials*. In addition to the above, you will also need some paper and pencils to record pertinent information as the game progresses. Also, chips and soda are a welcome addition to any gaming session…

2   PLAYING THE GAME

2.1   Preparations. First, lay out the game board on a flat surface. Then assemble all the other pieces necessary for play, as described on p. 7.

2.1.1   *Starting Forces*. Next, you will have to determine the number and types of ships on each side. If you are playing a pre-designed scenario, such as those starting on p. 41, this has been done for you. However, it can be just as enjoyable (if not more so) for players to design their own battles, especially since historical engagements were rarely evenly balanced.

2.1.2   *Ship Data Cards*. After the sides have been determined, each player should fill out a data card for each ship under his/her command; instructions on how to do this are given on p. 9. At the end of these rules is a blank sheet of ship data cards; this page can be photocopied for your personal use.

2.1.3   *Initial Placement*. Finally, the ships are placed on the hex-grid. If playing a pre-designed scenario, these starting locations will have already been assigned.

        All playing pieces must be placed on the game board so that they occupy one specific hex, and their front is pointing clearly at one of the six surrounding hex sides.

SEQUENCE OF PLAY

1. *Command Phase.*
    a. Players declare if any squadron leaders will transfer command.
    b. Players determine which of their ships and squadrons are "in command" or "out of command".
2. *Movement Phase.*
    a. Individual Ship Movement Segment.
        i. All ships that are to move individually record movement orders for the turn.
        ii. Ships are moved simultaneously according to their orders.
    b. Squadron Movement Segment.
        i. All squadrons currently in command record movement orders for the turn.
        ii. Squadrons are moved simultaneously according to their orders.
    c. Players check to see if any collisions have occurred and resolve any ramming attempts.
    d. Ships and aircraft check to determine if they have detected enemy submarines.
3. *Aircraft Phase.*
    a. Players alternate moving any aircraft they have on the board.
    b. Dogfights are resolved.
    c. Ships conduct anti-aircraft fire.
    d. Aircraft perform bombing attacks and/or torpedo runs.
    e. Aeroplanes record fuel consumption.
4. *Combat Phase.*
    a. Players record targets for the guns of each ship under their command.
    b. Torpedo attacks from the previous End Phase are resolved.
    c. Ships conduct depth charge attacks.
    d. Gunfire is conducted.
5. *End Phase.*
    a. Certain critical hits have continuing effects.
    b. Torpedo attacks for the upcoming turn are announced, and the targets for those attacks are plotted.
    c. Aeroplanes to be launched in the upcoming turn are placed on the board.

2.2   Sequence of Play. *Grand Fleets* is played in a series of turns. Each game turn consists of several phases that regulate how and when players can perform specific actions. More detailed information on how to conduct each phase can be found later on in these rules; for now, you should keep in mind that the turn sequence cannot go backwards or skip around—e.g., movement can only take place during the Movement Phase, and so on.

2.2.1   *Game Length*. In pre-designed scenarios, the point at which the game ends will be indicated. Otherwise, players should simply continue until one side or the other is eliminated, or gives up (whichever comes first). Alternatively, you can play for a set period of game time, typically 6 to 10 turns.

2.2.2   *Winning the Game*. If you are playing a pre-designed scenario, the conditions under which one side or the other can claim victory will be specified. However, in "pick-up" games, you can use the amount of damage inflicted as a basis for determining a winner:

HMS *Tiger* (battlecruiser)									
Hull	**Speed**	**Belt**	**Ends**	**Deck**	**Size**	**Mod.**	**C&C**	**C.R.**	**A.A.R.**
24	6	11/9	8/8	7	Large	+1	4	6	6
Armament		**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**			
UK 14"/45 Mk.V		+0	3/5/8	10/5/3	x2	ABCD2[OO] CDEF2[OO]			
UK 6"/45 Mk.VII		+1	2/4/6	3/1/1	x2	AC[OOO] BD[OOO] CE[OOO] DF[OOO]			
Light Guns		+3	1/2/3	1/0/0*	x1	[OOO]			
UK 21" Torpedo		-	5	-	x5	[O][O][O][O]			
Damage Track									
Hull Hits		[OOOOO O]		[OOOOO O]		[OOOOO O]		[OOOOO O]	
Speed		6		5		4		2	
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
14"	14"	6"	6"	6"	6"	6"	LG	-	

- Per point of hull damage inflicted = 1 VP
  PLUS
- Per ship sunk = (Hull points) VPs

For example, if a ship with 12 hull points took 11 points of hull damage, the opposing side would receive 11 victory points (VPs). However, if that ship were sunk, the opposing side would receive 12 VPs for the damage inflicted, plus a bonus of 12 for sinking the ship, resulting in a total of 24 VPs.

As a general rule, a ratio of 3:1 in VPs will indicate a decisive victory, a ratio of 2:1 in victory points indicates a marginal victory, while anything less indicates a draw.

Enterprising players may choose to determine more specific victory conditions—this is just fine, as long as everyone is clear on what needs to be done in order to "win" before the game starts.

3 THE SHIP DATA CARD

Each ship in a game of *Grand Fleets* will have a separate ship data card filled out for it. This section discusses the information on the card and its relevance to the game. A sample card has been filled out for HMS *Tiger* above.

If you are curious how we arrived at these values, feel free to read the section on *Conversions*, beginning on p. 32.

3.1 **Name & Class**. At the very top of the card is written the name of the ship. In our example, this is "HMS *Tiger*". Many ships in this time period had one or more sister ships; collectively, these were referred to as a "class". Our sample ship is the first of its particular type, lending its name to the class: the *Tiger*-class battlecruiser.

3.2 **Hull**. Ships can only take so much punishment; once this threshold is reached, the ship sinks, explodes, or otherwise becomes unavailable for further combat action. In *Grand Fleets*, this is quantified by the concept of "hull hits".

HMS *Tiger* can take 24 hull hits before sinking.

3.3 **Speed**. This is the number of movement points (MPs) the ship has available for use in the Movement Phase (see p. 14 for details). As the ship takes damage, it slows down; the current number of MPs is dependent upon the level of damage reached by the ship as shown in the Damage Track (see p. 12).

3.4 **Armor**. Most warships of cruiser size or larger were fitted with layers of metal, often backed with wooden timbers, in an effort to

prevent enemy shells from penetrating. In *Grand Fleets*, the various types and thicknesses of armor on a given ship have been whittled down to three sets of numbers; the belt armor (used to protect against attacks originating from the sides of the ship), the end armor (used against attacks from the fore and aft of the ship), and the deck armor (used against aerial attacks).

Players will note that the belt and end armor ratings are broken down into two values; e.g., "11/9". The number before the slash is the ship's normal armor value, while the value after the slash is used to defend against plunging fire (see p. 20).

HMS *Tiger* has belt armor 11/9, end armor 8/8, and deck armor 7.

3.5 **Size**. Ships in *Grand Fleets* are categorized according to their relative size, as indicated below:

Hits	Size Class	Mod.	C&C	C.R.
1-3	Very Small	-2	1	3
4-8	Small	-1	2	4
9-15	Medium	0	3	5
16-24	Large	+1	4	6
25-35	Very Large	+2	5	7
36+	Huge	+3	6	8

The size class has certain effects on the game; the derived values (Mod., C&C, and C.R.) are defined below.

HMS *Tiger* has 24 hull hits, and is therefore size class Large.

3.5.1 *Modifier (Mod.)*. This number is applied to an opponent's die roll when attacking the ship. See p. 20 for more details.

Opponents may add +1 to the die roll when attacking HMS *Tiger*.

3.5.2 *Command & Control (C&C)*. Ships in *Grand Fleets* are usually (but not always) grouped into squadrons. While the historical reasons for this are numerous and difficult to simulate in a wargame, a ship's command & control (C&C) rating helps reflect historical realities without cumbersome
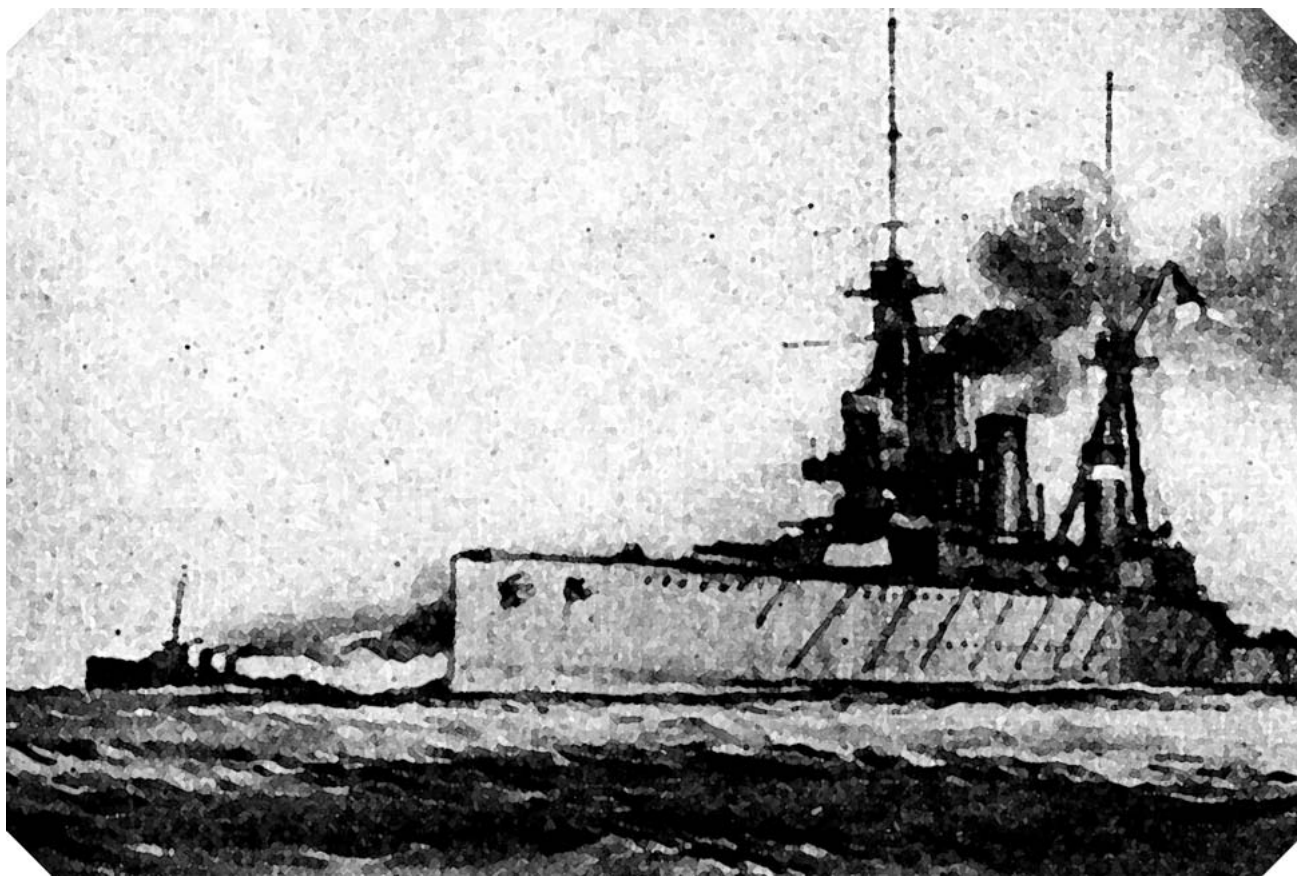
rules. See the next chapter for more information on how the C&C rating is used.

HMS *Tiger* has a C&C rating of 4.

3.5.3 *Command Radius (C.R.)*.

The command radius (C.R.) is only important to squadron leaders, as it indicates the maximum distance a member of the squadron can be from the leader and still be considered "in command". See p. 13 for more details.

As a squadron leader, HMS *Tiger* would have a command radius of 6 hexes.

3.6 **Anti-Aircraft Rating**.

The anti-aircraft rating (A.A.R.) indicates how effective the ship is at defending itself against aircraft. For details on anti-aircraft fire, see p. 28.

HMS *Tiger* has an A.A.R. of 6.

3.7 **Guns**.

The guns carried on a ship are divided into two types: heavy and light. Heavy guns are listed individually, with unique rate of fire bonus, range, penetration, and damage values. They comprise all guns with a bore diameter (caliber) of 100mm (4") or greater. Smaller guns (those with a caliber less than 100mm) are collected into a single gun type with set values;

these are referred to as "light guns".

It should be noted that the number of "light guns" in *Grand Fleets* does not correspond exactly to the number of small-caliber guns on the ship in reality. For details on how this is handled, see p. 34.

3.7.1 *Rate of Fire Bonus*.

A gun's rate of fire bonus (ROF) is expressed as a modifier to the attack roll.

HMS *Tiger*'s main guns have a +0 ROF, which means they get no bonus to the die roll when attacking.

3.7.2 *Range*.

Gun ranges are divided into three sections: short, medium, and long. Each is expressed in hexes.

HMS *Tiger*'s 14" guns have a short range of 3 hexes, a medium range of 5 hexes, and a long (maximum) range of 8 hexes.

3.7.3 *Penetration*.

This reflects the gun's ability to get through an enemy's armor plating. There are three different penetration values; the first is used at short range, the second at medium range, and the third at long range.

Many guns will have an asterisk (*) after
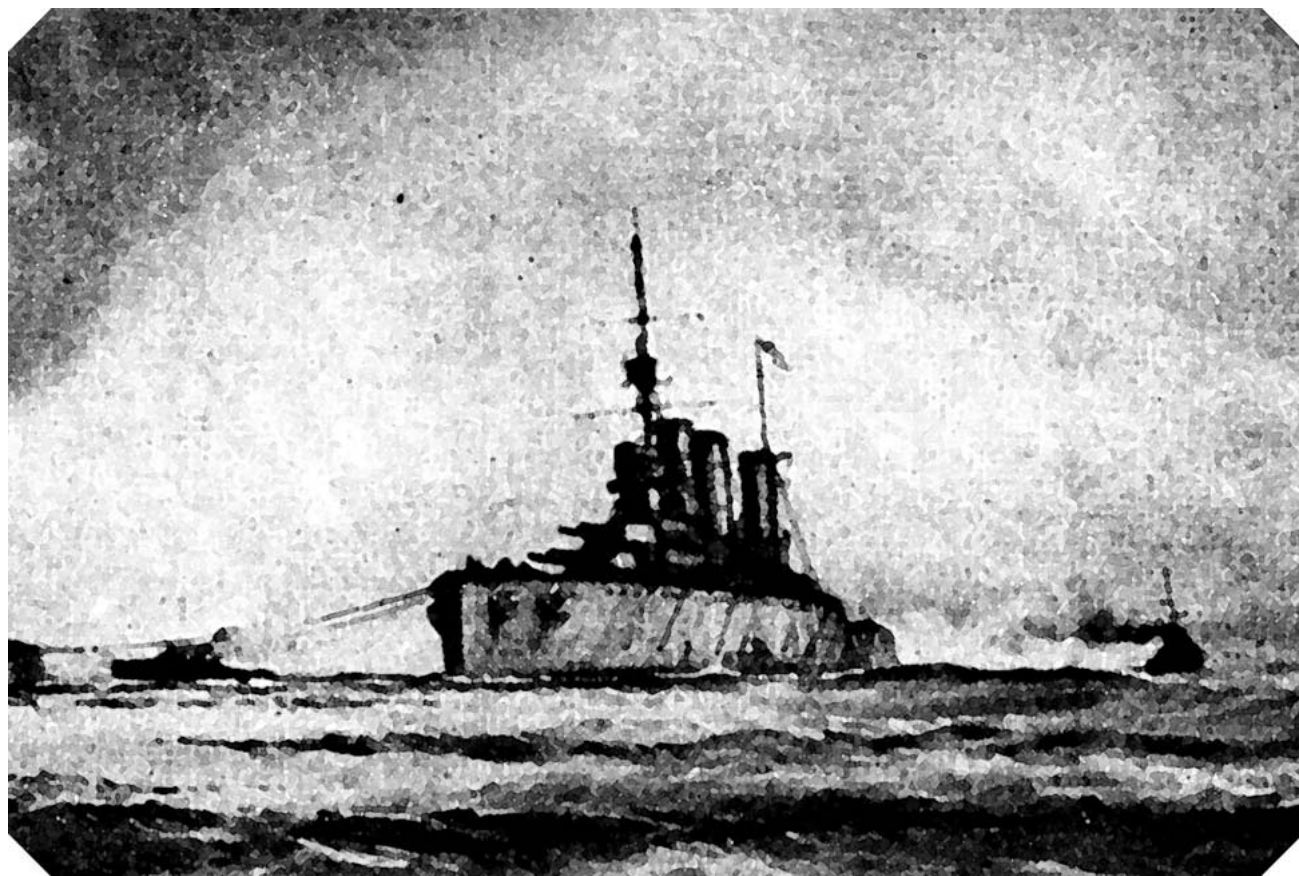
their long-range penetration value; this indicates the gun is capable of "plunging fire". Details on how this affects the game are given on p. 20.

HMS *Tiger*'s 14" guns have a penetration of 10 at short range, 5 at medium range, and 3 at long range. In addition, the asterisk (*) after the guns' long range penetration value indicates that they are capable of plunging fire.

3.7.4   *Damage*. The capability of a gun's shells to cause damage to an enemy ship is given here. More information on damage and its effects can be found on p. 23.

HMS *Tiger*'s 14" guns inflict two points of damage if they penetrate the armor of the target.

3.7.5   *Quantity*. This section indicates the number of each gun on the ship as well as the arcs into which each can fire (see p. 18). There are six firing arcs in *Grand Fleets*; each gun will be able to fire into one or more of these. A sample firing arc entry might look like this: "ABCD3[OO]" This means there are two turrets that can fire into the A, B, C, and D arcs, with three barrels per turret. Note that light guns do not have arc designations; they are able to fire in any direction, subject to the limitations given on p. 18.

HMS *Tiger* has four 14" turrets—two of them can fire into the [ABCD] arc, two into the [CDEF] arc—and all four turrets have two barrels, for a total of eight 13" guns.

3.8   **Torpedoes**. Most (but not all) ships in *Grand Fleets* will carry torpedoes. These weapons are handled differently than guns. Note that torpedoes do not have rate of fire bonuses or penetration values.

3.8.1   *Range*. The range of a torpedo indicates the maximum distance at which an enemy ship can be attacked.

The 21" torpedoes carried by HMS *Tiger* can attack a ship up to five hexes away.

3.8.2   *Damage*. This is the number of hits that are inflicted if the torpedo hits its target.

HMS *Tiger*'s torpedoes do five points of damage if they hit.

3.8.3   *Quantity*. This indicates how many torpedoes are carried by the ship, as well as the number of torpedo tubes. On the ship data card, each torpedo tube is designated by a set of brackets, with the number of torpedoes available to that tube indicated by the number of circles in between. For example, "[OO]" indicates one torpedo tube with two torpedoes.

Torpedoes are "one-shot" weapons; once used, they should be crossed off the data card. A ship may only launch one torpedo per tube per turn.

HMS *Tiger* has four torpedo tubes with one torpedo each.

3.9   **Damage Track**. The damage track consists of two lines; one for hull hits, and the other for the ship's current speed. As the ship takes hull damage, circles are crossed off the hull hit line from left to right. Once all of the circles in the first box are crossed off, the ship's speed is reduced to the number given in the second box of the speed line. When all the hull hits in the second box are crossed off, the speed drops to the number in the third box, and so on.

HMS *Tiger* has a starting speed of 6 hexes per turn. This drops to speed 5 after 6 hull hits, speed 4 after 12 hits, and speed 2 after 18 hull hits. Once 24 hull hits have been taken, the ship is sunk.

3.10   **Hit Location**. Whenever a ship takes damage, it automatically takes one hull hit per damage point. Then, a die is rolled for each damage point taken, and the Hit Location line is consulted to see whether any additional damage is applied.

For the HMS *Tiger*, a die roll of 1 or 2 indicates the loss of one of the 14" turrets, a die roll of 3 through 7 indicates the loss of one 6" gun, while a die roll of 8 indicates the loss of one light gun. A die roll of 9 indicates that no additional losses occur.

For all ships, any damage roll of 10 indicates that a critical hit has occurred (see p. 23).

4   COMMAND & CONTROL

Ships in *Grand Fleets* typically operate in groups, or "squadrons". This arrangement is necessary to allow for easy transmission of orders from the overall commander to the various ships under his command.

This game will not attempt to reflect all the various aspects of ship-to-ship communication, nor will it simulate the errors in command control that historically caused ships to turn the wrong way, attack the wrong targets, or break off an engagement just as final victory was assured. While intriguing, such breakdowns are extremely difficult to model, and would anyway be terribly frustrating to players.

Instead, command & control in this game has a subtle but important effect. Ships and squadrons that are "in command" conduct their movement after those ships that have fallen "out of command", thus giving the tactical advantage to the side whose ships remain in good order. This has the desirable effect of encouraging players to group their ships into squadrons that tend to mirror historical reality without bogging the game down with extra rules.

4.1   **Command & Control Rating**. Each ship in the game has a command & control (C&C) rating, which is based on its size class (see the chart on p. 10). The C&C rating of a squadron is equal to the sum of the C&C ratings of its component ships.

For example, the British First Cruiser Squadron consists of HMS *Southampton*, HMS *Birmingham*, HMS *Nottingham*, and HMS *Lowestoft*. Each of these ships is size class Small, with a C&C rating of 2. Thus, the squadron C&C rating is 8 (4 x 2).

Before the game begins, players must arrange their ships into squadrons whose C&C ratings each total 8 or more. This simulates the minimum level of organization necessary to relay orders quickly and effectively. Ships not so arranged will spend the entire game "out of command".

There are two exceptions to this rule:

- If all the ships on a given side are grouped into a single squadron, but their C&C rating is below the minimum of 8, they are still considered a viable squadron.
- If the total of all the C&C ratings of the ships on a given side is between 12 and 15, the ships may be divided into two squadrons with a minimum C&C rating of 6 each.

Squadrons will never fall out of command due to battle losses; as long as a squadron began the game with a C&C rating of at least 8, falling below that level will have no effect.

Ships cannot be transferred between squadrons during the game.

4.2   **Squadron Leader**. One ship in each squadron should be designated as the squadron leader. This can be any ship the player desires; however, it is typically better to have a larger ship serve in this capacity—having a destroyer as leader for a battleship squadron is probably not a great idea (it certainly wouldn't sit well with the battleship captains).

It should be noted that the identity of the squadron leader is not a secret; your opponent has a right to know which ship is leading each squadron.

4.2.1   *Command Radius*. In order to be considered "in command", a ship must be within the appropriate command radius of its squadron leader. Again, the command radius depends upon the size class of the leader, as per the chart on p. 10. Any ship not within the command radius of its squadron leader is out of command.

The British First Cruiser Squadron's leader is HMS *Southampton*. In order to be in command, HMS *Birmingham*, HMS *Nottingham*, and HMS *Lowestoft* must each be within 4 hexes of HMS *Southampton*'s position.

4.2.2   *Transferring Command*. During the Command Phase of each turn, players may choose to transfer command to another ship in the squadron; this is typically done due to battle damage or the sinking of the initial squadron leader.

When transferring command, roll a die, and consult the following chart:
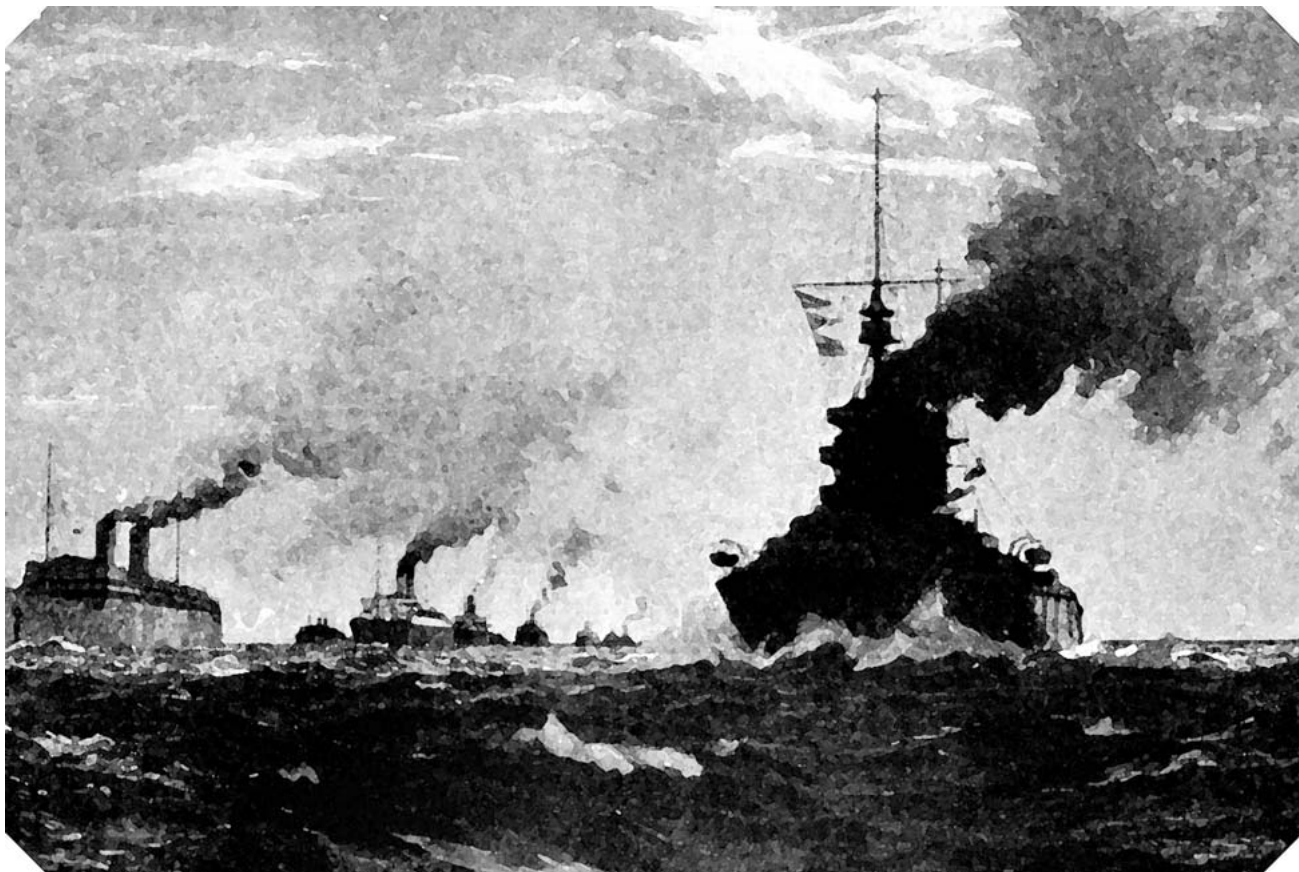
Roll	Effect
1	Squadron is out of command for the current turn *plus* the next three turns.
2-3	Squadron is out of command for the current turn *plus* the next two turns.
4-6	Squadron is out of command for the current turn *plus* the next turn.
7-10	Squadron is out of command for the current turn *only*.

After the indicated period of time, the new squadron leader takes control, and the squadron is back in command.

4.3 **Effects of Command**. Any ships or squadrons not in command must move as individual ships—i.e., they will move during the "Individual Ship Movement Segment".

5 MOVEMENT

As indicated in the sequence of play (p. 8), the Movement Phase is divided into two parts: during the "Individual Ship Movement Segment", ships that are out of command conduct their movement; during the "Squadron Movement Segment", all squadrons that are currently in command take their moves. Note that any ship wishing to perform movement separate from its squadron must move in the individual ships segment, even though it may currently be in command.

5.1 **Movement Points**. The movement of all ships is governed by the concept of movement points (MPs), which indicate how far a particular ship can move in a single turn. The number of MPs a ship has at its disposal is shown on the Damage Track of the ship data card, which is described on p. 12.

5.2 **Movement Orders**. During the individual ships segment, players will record separate movement orders for each ship that will move in that segment; during the squadron segment, only one set of movement orders is written for each

squadron—all ships to be moved in the squadron segment must follow those orders.

5.2.1   *Maneuvers*. Movement orders consist of a series of maneuvers and/or forward movement. For example, the orders "1SS2" mean that the ship is to move one hex forward, turn two hex sides to starboard (clockwise), and then move another two hexes forward. A ship may perform any combination of maneuvers or forward movement desired, as long as the number of available MPs is not exceeded. The various possible maneuvers are:

- *Turn to Port (P)*. The ship is turned one hex side to the left (counter-clockwise). A turn to port costs one MP.
- *Turn to Starboard (S)*. The ship is turned one hex side to the right (clockwise). A turn to starboard costs one MP.
- *Evasive Maneuver (E)*. The ship conducts a series of "zigzags" in an attempt to evade opposing gunfire and/or torpedoes. However, at the scale of the game board, this is still basically forward movement; thus, the ship is moved one hex forward. Evasive maneuvers may only be performed during the individual ships segment of the Movement Phase. An evasive maneuver costs two MPs.

5.2.2   *Spending Movement Points*. Each maneuver has a corresponding MP cost, as given above. Forward movement costs one MP per hex. Thus, movement orders of "1SS2" would cost 1 + 1 + 1 + 2 = 5 MPs.

Designers' Notes: **Movement**

One of the questions we were asked over and over again in the development of this game was, "Why can't I move my ships *this* way?"

Since an answer of "Because we said so!" didn't seem to satisfy our intrepid playtesters, we thought it might be useful to provide a brief rationale for the restrictions placed on ship and squadron maneuvering.

First and foremost, players should remember that in the time period covered by *Grand Fleets*, admirals didn't have the luxury of instant and continuous communication with the captains under their command. Orders were relayed via flag hoists, signal lamps, and on occasion, semaphore. However, these orders were severely limited in what information they could convey, and individual ship captains were likewise limited in the amount of initiative they could exercise. No matter how vague or unwise an order seemed, it was expected that captains would carry it out to the best of their ability.

There were two primary ways in which commanders exerted command control: the first was to send out an order which was intended for an entire squadron; while it was possible to relay orders to individual ships, this was inefficient and time-consuming (consider that under combat conditions, it could take up to 20-30 minutes to relay one order!) . Squadrons in "line-abreast" formation were making use of this type of command control.

The second method was use of the "line-ahead" formation, in which ships steamed one after the other, each ship following the moves made by the ship in front of it. This was useful in that it was only necessary for one ship (the leader) to know where it was supposed to go: the others simply tagged along.

In *Grand Fleets*, we have attempted to simulate this by using two different types of squadron movement: simultaneous and line-ahead. The restrictions placed upon each type are intentional and meant to simulate the fact that admirals were simply not able to dictate the moves of individual ships. While it may occasionally be tempting to claim that a ship captain would "naturally" do *this*, or "logically" understand that he was meant to do *that*, such comments are not consistent with historical reality. Captains did what they were told (or what they *thought* they had been told), no less and no more; this, more than any other fact, was responsible for most of the infamous breakdowns in command control that plagued fleets of this period. The inclusion of the Individual Ships Movement Segment, in which ships are allowed to move independently of their squadron's orders at the price of giving away their position, is intended to provide players some of the control they may be used to in other games, while still remaining somewhat faithful to the time period.

Of course, this is only a simulation, and as such cannot possibly reflect every nuance of the way things "really" were—we have tried to strike a compromise between the desire for an appropriate historical "feel" and the need for a fun game. We think we have succeeded, and hope you agree.

No ship may spend more MPs than it currently has available. A ship does not have to spend all of its MPs, but any unused are lost; i.e., MPs cannot be saved from turn to turn.

5.3 **Types of Squadron Movement**. It is an important aspect of *Grand Fleets* that squadrons must move together if they are to stay in command. Each turn, a squadron may only make use of one set of movement orders, involving only one of the two available types of movement—e.g., a squadron that begins using line-ahead movement cannot use simultaneous movement in the same turn.

Any ship that wishes to move on its own must do so during the individual ships segment.

For purposes of gunfire, the speed of each ship in the squadron will be considered to be that of the order written (see p. 20).

5.3.1 *Simultaneous Movement*. When using simultaneous movement, one set of movement orders is recorded for the entire squadron; all the ships in the squadron must then follow these movement orders.

If a ship does not have enough MPs to complete the squadron's orders, it must perform as much of those orders as it can. For example, HMS *Tiger*'s squadron orders are "1S3", which would require 5 MPs; however, *Tiger* has only four MPs available. Therefore, *Tiger* will only move "1S2".

5.3.2 *Line-Ahead Movement*. The second type of movement is for ships that are in "line-ahead" formation. A group of ships is considered to be in line-ahead if all of the ships are in a continuous chain of adjacent hexes, with each ship facing the one directly ahead of it. There may be more than one ship per hex in a line-ahead formation, but all ships in a single hex must be facing the same direction.

Ships in line-ahead may choose to "follow the leader" rather than execute simultaneous movement orders. When following the leader, the first ship in the line is moved according to the written movement orders; the ship directly behind it is then moved so that it follows the exact path taken by the first ship; the third ship follows the path taken by the second; and so on.

Line-Ahead Formation
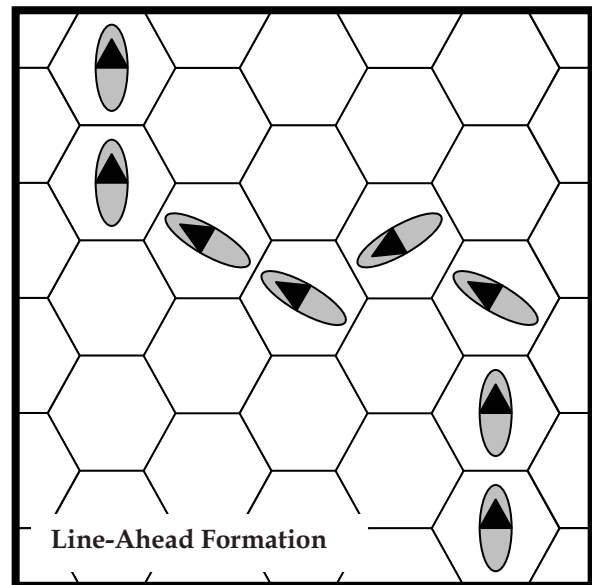
If you find this distinction difficult to visualize, consider two ships, one directly in front of the other. If they both move one hex forward, turn to port, and then move forward another hex, they will no longer be in line-ahead, as the second ship is no longer facing the first. If the ships are to remain in line-ahead formation, the second ship must move forward two hexes and then turn to port, which is a different set of movement orders than those executed by the first ship.

Note than in line-ahead formation, the first ship in the line does not need to be the squadron leader.

It is sometimes necessary for ships further down the line to use more MPs than the lead ship(s) in order to maintain the line-ahead formation. This is fine, as long as no ship uses more MPs than it has available.

If a ship using line-ahead movement does not have enough MPs to "catch up" to the ship directly ahead of it, the ship should be moved through the appropriate path as far as possible; remember that each ship follows the one directly ahead of it, so a fast ship will *not* overtake a slower ship ahead of it in the line. If a ship *does* have enough MPs to enter the hex last occupied by the ship ahead of it, but does *not* have enough to turn to face it, the ship may execute such a turn for free—i.e., at no MP cost. This is simply to ensure that the line-ahead formation is maintained.

5.4 **Moving the Ships**. After movement orders have been recorded, the ships are moved on the game board. It doesn't matter in what order

they are moved; all ships may be moved simultaneously if desired.

Remember that individual ships should be moved on the board before in-command squadrons record their movement orders.

5.4.1   *Stacking*. Even though the scale of *Grand Fleets* is fairly large at one nautical mile per hex, it is impractical to think that any number of ships could effectively occupy the same hex. The risk of collision, especially while under fire, was great enough that ships had to maintain a certain degree of separation from each other.

Each ship has a size class, which yields a number of "size points" equal to the C&C rating (e.g., a Very Large ship would have 5 size points). Up to 10 size points of ships may be in the same hex at any one time without incident. This limit may be exceeded during the Movement Phase, but once all movement is finished, if more than 10 size points' worth of ships are in the same hex, there is a risk of collision.

See below for details on how to resolve collisions and/or ramming attempts.

5.4.2   *Exiting the Game Board*. Ships wishing to disengage from battle may voluntarily leave the game board. However, any ships that do this may not re-enter the game and are considered destroyed for victory purposes.

5.4.3   *Floating the Game Board*. A ship may find itself close to the game board edge without wishing to disengage. In this case, players may "float" the game board; i.e., move all of the ships a number of hexes in the same direction, maintaining their current facings and relative positions. If it is not possible to do this without moving another ship off the opposite edge of the game board then this cannot be done, and the ship on the edge of the board will have to maneuver in such a way as to stay in the game (or else that player will have to spring for the purchase of a bigger table…).

5.5   **Collisions & Ramming**. While rare, it is quite possible that ships will run in to one another. As stated above, if 10 or more size points' worth of ships are in a single hex at the end of the Movement Phase, there is a possibility for collision. Even if this stacking limit is not exceeded, ships from opposite sides that are in the

same hex may elect to intentionally ram each other.

Players should check for collisions before resolving any potential ramming attempts.

5.5.1   *Collisions*. If there are 10 or more size points of ships in the same hex, roll a die for each ship, noting which ship got which result. Any ships that have identical rolls have collided with each other.

For example, four size class Large ships (3 size points) are in the same hex; this is a total of 12, so they must check for collision. A die is rolled for each ship, coming up 6, 3, 8, and 3. Therefore, the two ships that rolled a 3 have collided. The other two are unaffected.

5.5.2   *Ramming*. Whenever ships from opposing sides end the Movement Phase in the same hex, players should check to see if any ramming will occur. Roll a die for each ship, and add the number of MPs currently available to that ship. Then, in descending order of these results, players declare whether or not they will ram a ship with a lower result.

For example, HMS *Tiger* and SMS *Moltke* are in the same hex at the end of the Movement Phase. *Tiger* rolls a die and adds 6 (its current MPs), while *Moltke*, which has suffered some damage already and had its speed reduced, only adds 3 to its roll. *Tiger*'s total is 12, while *Moltke*'s is just 7. Therefore, *Tiger* may choose to ram *Moltke*; however, *Moltke* cannot choose to ram *Tiger*.

5.5.3   *Effects of Collisions*. Whenever two ships collide, either unintentionally or due to ramming, follow this procedure to determine the damage inflicted on each ship:

Each ship will inflict damage to a ship with which it has collided based upon its total number of hull points. Divide its hull size by 5 (rounding up); this is the number of damage points inflicted on the other ship. See p. 23 for details on the effects of damage.

For example, HMS *Tiger* is involved in a collision with HMS *Southampton*. *Tiger* has 24 hull points (24 / 5 = 4.8, rounded up to 5); *Southampton* has 6 (6 / 5 = 1.2, rounded up to 2). Thus, *Tiger* would suffer 2 points of damage, while *Southampton* would take 5 hits.

6 GUNNERY COMBAT

The Combat Phase is divided into several segments: first, players write down firing orders for their ships' guns; second, any torpedoes launched in the previous turn resolve their attacks; and finally, gunfire is carried out.

This chapter is concerned solely with gunfire; torpedo attacks are described on p. 21.

6.1 **Firing Orders**. As with movement, ships will pre-record their actions in the Combat Phase; this is done to avoid things like "Me too!" fire, and to add a bit of uncertainty to the process. Since torpedoes conduct their attacks after firing orders are recorded, but before gunfire is resolved, it is possible that some targets will no longer be afloat by the time gunnery occurs.

Firing orders consist of the targets to be engaged, and the guns to be fired at each. For example, if HMS *Tiger* were to fire her 14" guns at SMS *Moltke* and her 6" guns at SMS *Blücher*, the firing orders might look like this:

Moltke 14"; Blücher 6"

6.1.1 *Maximum Number of Targets*. Ships of this time period were limited in the number of targets they could engage at the same time. In *Grand Fleets*, a ship may only fire each set of guns at a single target per turn. For example, HMS *Tiger* could pick one target for her 14" guns and another for her 6" guns; however, she could not fire some 14" guns at one target and others at another target.

The exception to this rule is light guns, which may attack up to two different targets each turn. The number of light guns that can fire at each target depends upon the arc:

- A, B, E, or F: One-fourth of the light gun total (rounded up)
- C or D: One-half of the light gun total (rounded up)

For example, HMS *Tiger* has three light guns. This means that up to two guns (3 x ½ = 1½, rounded up to 2) can be fired at a target in the C or D arc, while only one (3 x ¼ = ¾, rounded up to 1) could be fired at a target in the A, B, E, or F arc.

The two targets engaged by the light guns cannot be in the same firing arc. The number of light guns fired cannot exceed the light gun total on the ship.

6.1.2 *Firing Arcs*. There are six basic firing arcs in *Grand Fleets*; each arc covers 60°, as shown in the diagram below:
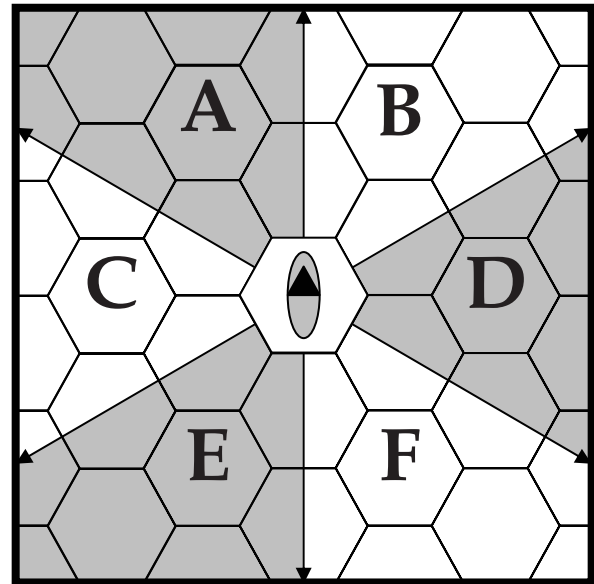
If a hex is bisected by the line between two arcs, then *both* arcs are valid for that hex.

The armament section of the ship data card details the arcs into which each gun can fire. Obviously, only those weapons that are mounted in the appropriate arcs are able to fire at a target. Remember that light guns have no firing arc restrictions, and may be used against targets in any direction, subject to the restrictions above.

Ships from the same squadron that are in the same hex must be all facing in the same direction in order for any of them to fire out of the hex. When this happens, one ship must be assigned the "front" position in the hex, while another is assigned the "rear" position. The front ship is able to fire into the A, B, C, and D arcs, while the rear ship is able to fire into the C, D, E, and F arcs. All other ships are restricted to firing into the C and D arcs only.

When ships from opposing sides are in the same hex, use the following procedure to determine the positions of these ships in relation to each other:

Each ship rolls a die, and adds its current speed; re-roll any ties. The ship with the lowest total remains in place (the "center hex"); then, in ascending order, the remaining ships are placed into the center hex or one of the six adjacent hexes, maintaining their same facing. Ships from opposing sides may not be placed into the same hex during this process.

Remember that all of these ships are still located in the center hex; their models have been moved simply to illustrate their relative positions within that hex. When the Combat Phase is over, the models should all be moved back into the center hex, again retaining their same facing.

6.1.3   *Range*. The distance from a firing ship to its target is referred to as the *range*, and is determined by counting the number of hexes along the shortest path between the two. When determining the range, you should count the hex containing the target, but not that of the firing ship.

Each weapon's range is divided into three bands: short, medium, and long. A weapon may not attack any target outside its long range band.

6.1.4   *Line of Fire*. In order to attack a target, a ship must be able to trace a line of fire (LoF) to that target. This means that an imaginary line, drawn from the center of the firing ship's hex to the center of the target ship's hex, must not cross any part of a hex that blocks LoF.

If the line passes between two hexes, LoF is not blocked unless hexes on both sides of the line block LoF.

LoF is subject to the following restrictions:

- LoF is *never* blocked between ships in the same hex. This condition overrides all those that follow.
- The firing ship's hex blocks LoF if it contains any other friendly ship or ships from a different squadron, or if it contains ships from the same squadron that are facing in a different direction than the firing ship.
- The firing ship's hex blocks LoF if it contains an enemy ship of the same size class or larger than the firing ship or the target.
- The target's hex blocks LoF if it contains a ship friendly to the firing ship.
- Hexes between those occupied by the firing ship and the target will block LoF if they contain any ship—friend or foe—of the same size class or larger than either the firing ship or the target.
- Any hex containing land blocks LoF.

Note that these rules do not imply that ships cannot "see" each other in these
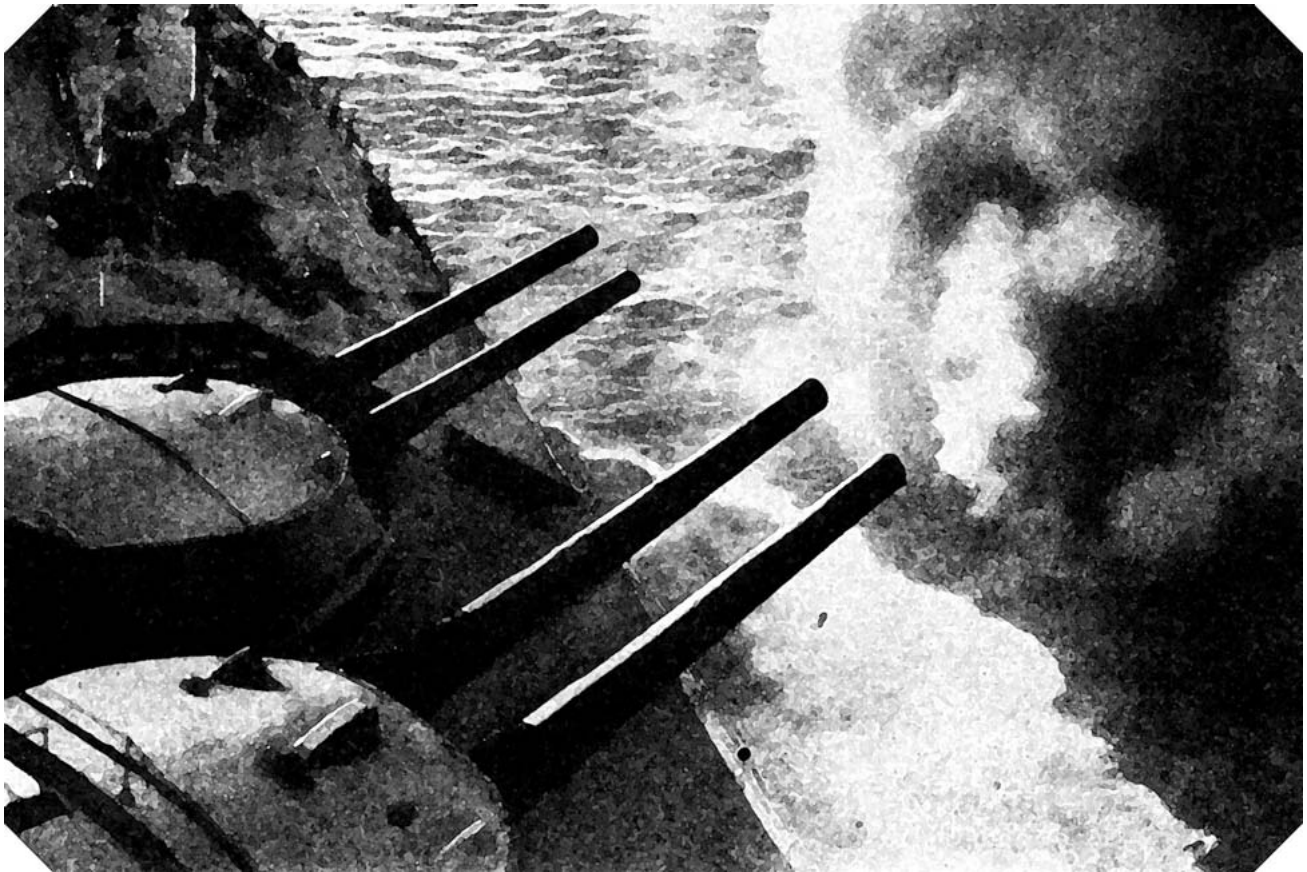
circumstances, only that they cannot fire at each other; thus, it is "line of fire" rather than "line of sight". Ships could normally see past one another, but it is unreasonable to think that a ship would shoot directly over an enemy ship in order to attack a more distant target of the same size or smaller, or that a ship would fire at any target when there is a more than probable chance of hitting a friendly vessel.

6.2 **Gunfire Resolution**. Once it comes time for attacks to be resolved, two separate die rolls are needed for each gun that is firing: the to-hit roll and the penetration roll.

The order in which gunfire is conducted is unimportant; any damage will take effect after all attacks have been resolved.

6.2.1 *The To-Hit Roll*. One die is rolled for each gun attacking the target; each die that comes up 8 or higher scores a hit on the target.

There are numerous modifiers which affect the to-hit roll; these are listed below:

- **Evasive Maneuvers**: -1 per "E" plotted by either the firing ship or target
- **Over-concentration[1]**: -1 per additional ship firing at the same target (light guns do not contribute to this penalty, nor do they incur it themselves; it applies only to those guns firing at long range, but *all* ships firing at the target contribute to the penalty)
- **Range**:
  - Short range: +1
  - Medium range: 0
  - Long range: -1

---

[1] The over-concentration penalty represents the confusion that can be caused when more than one ship is firing at the same target.

For example, HMS *Tiger* and HMS *Princess Royal* are both firing at SMS *Moltke*. *Tiger* is at long range, while *Princess Royal* is at medium range. Since there are two ships firing at the same target, the overconcentration penalty is -1; however, only *Tiger* will suffer this penalty, as *Princess Royal* is close enough to discern which splashes are from her shells and which are from *Tiger*'s.

- **Rate of Fire Bonus**: +ROF
- **Speed** (refers to the number of MPs actually expended, not the total number available; target and firer modifiers are cumulative[2]):
  - Target/firer speed 0-1: +1
  - Target/firer speed 2-3: 0
  - Target/firer speed 4-5: -1
  - Target/firer speed 6-7: -2
  - Target/firer speed 8+: -3
- **Target Size**:
  - Very Small: -2
  - Small: -1
  - Medium: 0
  - Large: +1
  - Very Large: +2
  - Huge: +3

Players will note that any cumulative modifier of -3 or more will effectively make it impossible for a gun to hit its target (i.e., the highest possible roll with a -3 modifier is 7, less than the required 8). In these cases, it may still be possible (however unlikely) to score a hit; consult the following chart:

Modifier	Unmodified Rolls Needed To Hit
-3	10, plus a second roll of 3 or better
-4	10, plus a second roll of 7 or better
-5	10, plus a second roll of 9 or better
-6	10, plus a second roll of 10
-7 or worse	No chance of hitting

For example, HMS *Tiger* is firing her 6" guns (ROF +1) at a German destroyer (size class Very Small, -2) at long range (-1). *Tiger* is moving at speed 3 (no modifier), while the destroyer is speed 6 (-2). The overall modifier is -4; consulting the above chart, this means *Tiger*'s guns will need to roll an unmodified 10 on the die and then roll again, scoring a 7-10 on this second roll in order to hit the destroyer.

6.2.2 *The Penetration Roll*. Once a shot has been determined to have successfully hit the target, a second die roll, the penetration roll, is made.

Each gun has a penetration value for each of the three range bands. Roll a die and add the

---

[2] For example, if the firing ship is moving at a speed of 4, and the target ship is moving at a speed of 6, then the overall speed modifier would be a –3 (-1 for the movement of 4, and –2 for the movement of 6).

appropriate penetration value. If the total *exceeds* the relevant armor value of the target, the shot has penetrated.

To determine which of the target's armor values to use, draw a line from the center of the firing ship's hex to the center of the target hex. If this line travels through any part of the hexside directly in front of, or directly behind, the target ship, the first end armor value (before the slash) is used. Otherwise, use the first belt armor value (before the slash).

If the firing guns are capable of plunging fire (i.e., there is an asterisk after the guns' long-range penetration value) *and* the target is at long range, then use the number after the slash when attempting to penetrate a target's belt or end armor.
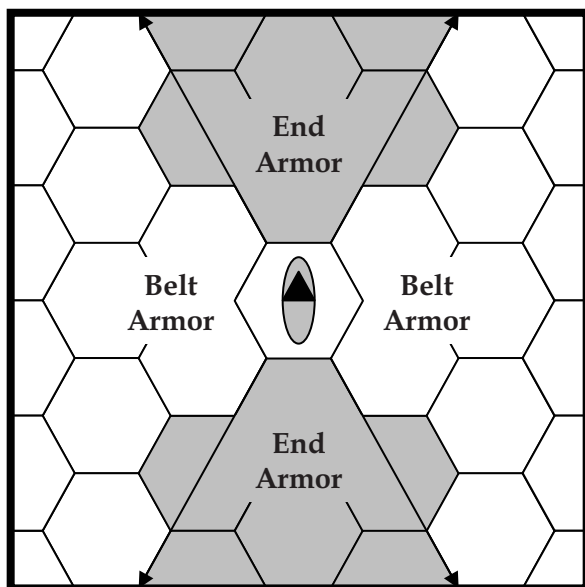
6.2.3 *Damage*. Shots that penetrate the armor inflict a number of hits on the target equal to the damage value of the gun. The effects of damage are described starting on p. 23.

7 TORPEDOES

Early in the period covered by this game, torpedoes were not much of a threat; the Russian torpedoes used during the Russo-Japanese War, for example, were particularly worthless. However, the psychological value was significant, and as time passed and technology improved, the torpedo became a feared weapon—it allowed the smallest of vessels to cripple the mightiest dreadnought.

As indicated in the Sequence of Play (see p. 8), torpedoes have their effects spread out over two different phases: their intended targets are recorded in the End Phase, while their attacks are resolved in the subsequent Combat Phase.

7.1 **Launching Torpedoes**. During the End Phase of each turn, any ship with torpedoes on board may choose to launch one or more of them at enemy ships. An announcement is made of which ships are launching torpedoes, but not which ships are the target(s) of the torpedo run. The target for each torpedo being fired is recorded on paper, along with one of the six firing arcs (A through F). This indicates in which gunfire arc you believe the target will be at the end of the following Movement Phase, and therefore the direction in which you are firing your torpedo.

For example, HMS *Tiger* wishes to fire a torpedo at SMS *Moltke*. *Tiger* believes *Moltke* will be off her port bow (firing arc "A") after the upcoming Movement Phase, and therefore writes down "Moltke [A]". Note that there are no arc restrictions; any torpedo may be launched into any of the six firing arcs.

A ship may only launch one torpedo per tube in a single turn; each torpedo may target a different ship.

Remember that torpedoes are single-use weapons; once a torpedo has been launched, it should be crossed off the ship data card.

7.2 **Resolving Attacks**. After gunnery firing orders have been written in the Combat Phase, but before any of those orders are carried out, torpedoes launched in the previous End Phase will resolve their attacks.

Note that torpedoes are considered to be "in the water" by the end of a ship's movement; thus, damage suffered by the firing ship before torpedo attacks are resolved will not stop the torpedoes.
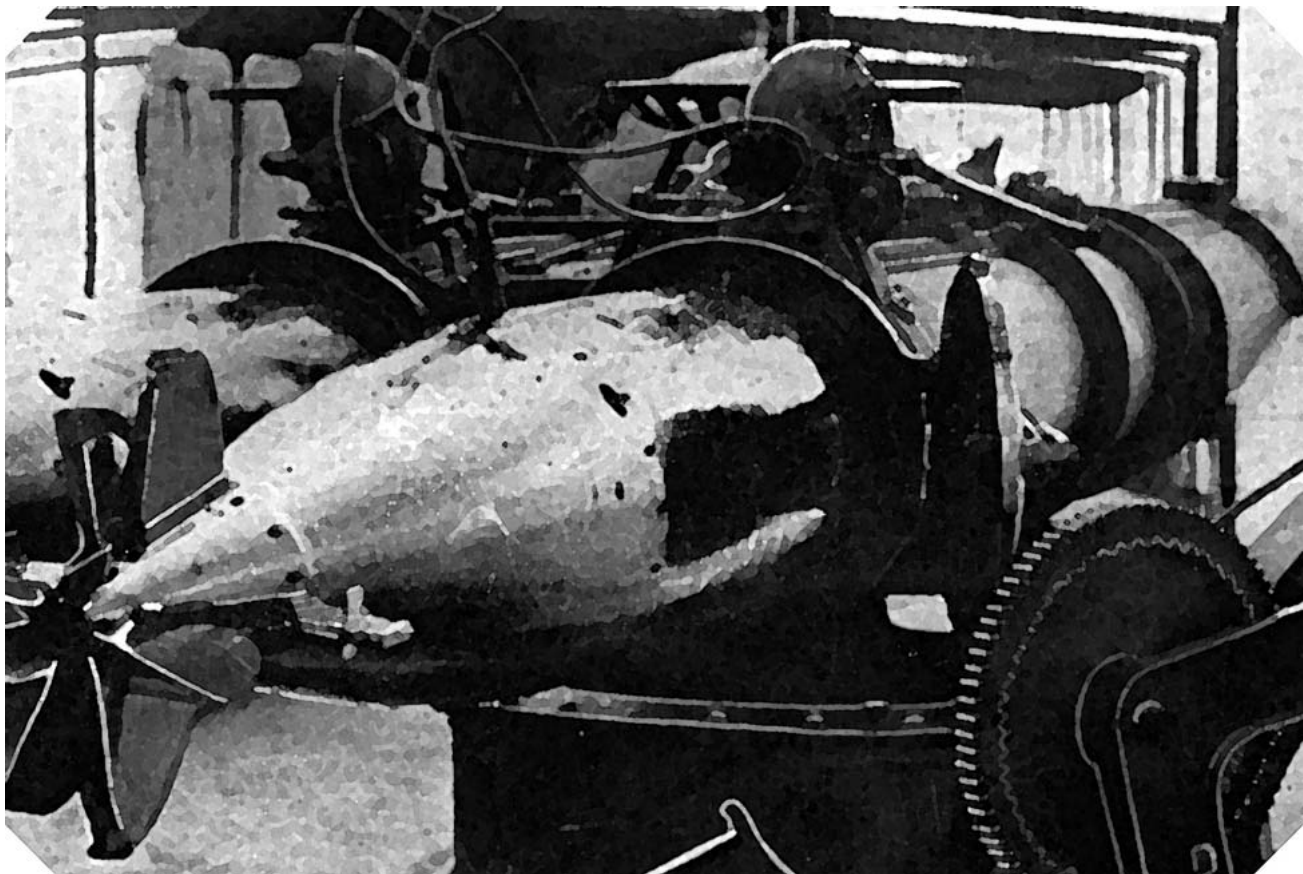
7.2.1   *Range & Arc.* In order for a torpedo to have any chance of hitting, the intended target must now be within the recorded arc and the torpedo's range of the firing ship. In addition, the firing ship must have a line of fire (LoF) to the target. For example, HMS *Tiger*'s 21" torpedoes have a range of 5; *Tiger* had recorded "Moltke [A]" in the previous End Phase. This means that during the Combat Phase, *Moltke* must be in the [A] firing arc, within 5 hexes of *Tiger*, and *Tiger* must have LoF to *Moltke*, in order for the torpedo to have a chance of hitting.

If the intended target is not within the necessary range and arc, or if the firing ship does not have LoF to the target, at the time torpedo attacks are resolved, the torpedo has no chance of hitting, and it has no effect.

If the target is in the same hex as the firing ship, the torpedo will make its attack, regardless of firing arc. Note that the line of fire (LoF) restriction only applies when the torpedo attack is resolved, not when the target is recorded.

7.2.2   *To-Hit.* If the intended target is within the necessary arc and range, a die roll is made to see if the torpedo hits its target. This to-hit roll is similar to that for gunfire (see p. 20); the roll needs to be 8 or higher in order to succeed. Modifiers to this roll are as follows:

- **Evasive Maneuvers**:   -1 per "E" plotted by either the firing ship or target
- **Range**:
    - Same hex   +1
    - 1-2 hexes   0
    - 3-5 hexes   -1
    - 6-9 hexes   -2
    - 10-14 hexes   -3
    - 15+   -4
- **Speed** (refers to the number of MPs actually expended, not the total number available; target and firer modifiers are cumulative[1]):
    - Target speed 0-1:   +1
    - Target speed 2-3:   0
    - Target speed 4-5:   -1
    - Target speed 6-7:   -2
    - Target speed 8+:   -3

---

[1] For example, if the firing ship is moving at a speed of 4, and the target ship is moving at a speed of 6, then the overall speed modifier would be a –3 (-1 for the movement of 4, and –2 for the movement of 6).

- **Target Size**:
    - Very Small: -2
    - Small: -1
    - Medium: 0
    - Large: +1
    - Very Large: +2
    - Huge: +3
- **Under Gunfire[1]**: -1

As with gunfire, there is a chance that torpedoes with a cumulative -3 modifier or worse may still hit. Consult the following chart:

Modifier	Unmodified Rolls Needed To Hit
-3	10, plus a second roll of 3 or better
-4	10, plus a second roll of 7 or better
-5	10, plus a second roll of 9 or better
-6	10, plus a second roll of 10
-7 or worse	No chance of hitting

7.2.3 *Damage*. When a torpedo hits its target, there is no need for a penetration roll; armor has no effect on torpedo hits. Each torpedo inflicts a number of hits on the target equal to its damage rating. In addition, every torpedo hit causes a critical hit (see p. 23).

The effects of damage are described in the next section.

---

8 DAMAGE

There are several ways in which ships may incur damage during the course of the game; this section describes how this damage is applied, and what effects it has on ships.

8.1 **Hull Damage**. Whenever a ship takes damage, it automatically takes one hull hit per damage point. Simply cross off one circle in the left-most box of the hull hits portion of the damage track. If all the circles in that box have been crossed off, then move to the second box, then the third, and then the fourth. Once all the circles in the fourth box have been crossed off, the ship has been sunk, and should be removed from the board.

8.2 **Damage Roll**. Next, a die is rolled for each damage point taken, and the Hit Location line is consulted to see whether any additional damage is applied.

For the HMS *Tiger*, a die roll of 1 or 2 indicates the loss of one of the 14" turrets, a die roll of 3 through 7 indicates the loss of one 6" gun, while a die roll of 8 indicates the loss of one light gun. A die roll of 9 indicates that no additional losses occur.

If the die roll results in gun damage, one gun mount of the appropriate type is destroyed. If possible, the affected gun must be one that could be brought to bear on the firing ship; i.e., if being attacked from the rear, the target cannot lose a forward-firing gun unless that is the only option available. If the damage is from a torpedo hit, any gun can be lost, regardless of firing arc.

If no guns of the indicated type remain, then no additional damage is suffered.

Any damage roll of 10 causes a critical hit (see below).

8.3 **Critical Hits**. Any damage roll of 10 results in a critical hit. In addition, each torpedo that hits its target automatically causes one critical hit.

For each critical hit, roll 2d on the following table; the effects of the various types of hit are described in the following sections. Note that there are separate columns for "normal" critical hits (due to gun damage, collisions, etc.) and for those due to torpedo hits.

Roll	Critical Hit	Torpedo Critical Hit
2	Magazine	Magazine
3	Engine	Engine
4	Engine	Engine
5	Rudder	Engine
6	List	Rudder
7	Fire Control	List
8	Flooding	Flooding
9	Fire	Flooding
10	Flooding	Flooding
11	Bridge	Fire
12	Fire	Flooding
13	Flooding	Flooding
14	Fire	Flooding
15	Fire Control	List
16	List	Rudder
17	Rudder	Engine
18	Engine	Engine
19	Engine	Engine
20	Magazine	Magazine

8.3.1 *Bridge*. A shot has hit, or nearly hit, the bridge. The ship must move in the individual ships segment of the following Movement Phase. If the ship takes a second bridge critical hit, it has to move in the individual ships segment of the next two Movement Phases, and so on.

Note that, if a squadron leader suffers from a bridge hit, its entire squadron must move in the individual ships segment of the following Movement Phase.

8.3.2 *Engine*. The ship's engine has been damaged. The ship's speed is permanently reduced by one.

8.3.3 *Fire*. A hit has started a fire. A fire marker is placed on the ship. While a ship is on fire, it suffers a -1 to-hit penalty to all gunfire attacks.

During the End Phase, roll a die for each fire marker on a ship:

Roll	Effect
1	The ship suffers 3 additional points of damage.
2-3	The ship suffers 2 additional points of damage.
4-6	The ship suffers 1 additional point of damage.
7-10	The fire has been extinguished. Remove one fire marker from the ship.

Damage rolls are made as normal for hits taken due to a fire.

8.3.4 *Fire Control*. The ship's fire control system has been disrupted. The ship cannot conduct gunfire in the next Combat Phase. If the ship takes a second fire control critical hit, it cannot conduct gunfire for the next two Combat Phases, and so on.

8.3.5 *Flooding*. The ship has started to take on water. Place a flood marker on the ship. While a ship is flooding, its available MPs are reduced by one.

During the End Phase, roll a die for each flood marker on a ship:

Roll	Effect
1	The ship suffers 3 additional hull hits.
2-3	The ship suffers 2 additional hull hits.
4-6	The ship suffers 1 additional hull hit.
7-10	The flooding has been contained. Remove one flood marker from the ship.

Damage rolls are *not* made for hits taken due to flooding; only the hull damage applies.

8.3.6 *List*. An excessive list has caused movement and fire control problems. For the remainder of the game, the ship's speed is reduced by one, all gunfire incurs a -1 to-hit penalty, and no torpedoes can be launched. If the ship suffers a second "List" critical hit, roll a die: on an even result, the ship has righted itself and the earlier list is cancelled out; on an odd result, the ship has capsized and is removed from the game.

8.3.7 *Magazine*. One of the ship's magazines has been hit and explodes. The ship disappears in a ball of flame.

8.3.8 *Rudder*. The ship's rudder has been jammed. Until this damage has been repaired, all turns ("P" or "S" maneuvers) cost two MPs each, and evasive maneuvers ("E") cannot be performed. If the rudder is already jammed, further rudder critical hits have no effect.

To repair this damage, roll a die during each End Phase; on a 6 or more, the rudder has been freed.

9   AIRCRAFT

While aeroplanes did not historically become a major part of naval warfare until the start of World War II, aircraft carriers existed in the world's navies as early as 1914. Besides, they make for a cool addition to *Grand Fleets*, so we couldn't leave them out. In addition, while they never made a serious impact on sea combat, Zeppelins[1] were a greatly-feared weapon, at least by civilian populations, and so we include them as well.

Aircraft should be represented on the game board with cardstock counters or by miniature models. Of course, such models will likely be out of scale with the ships—a Sopwith Camel at 1:6000 scale would have a wingspan of about 0.06".

9.1   **Game Values**. Aircraft in *Grand Fleets* are significantly abstracted; at the scale of this game, excessive detail would only complicate matters with little to no benefit. Still, there are certain aspects of each aircraft that need to be defined.

A sample aeroplane is given below:

Sopwith Camel		Fuel: 12
Hits: 1	Speed: 18	Altitude: 3
Attack: +5		Bombs: None
Torpedoes: None		

A sample Zeppelin looks like this:

L42		
Hits: 10	Speed: 11	Altitude: 3
Attack: +3		Bombs: 11 (x4)
Torpedoes: None		

9.1.1   *Fuel (Aeroplanes only)*. Each aeroplane can only be in the air for a limited period of time. The plane's fuel rating indicates the maximum number of turns it may stay aloft. Air-to-air combat will significantly reduce available flight time.

The Sopwith Camel has a maximum flight time of 12 turns.

9.1.2   *Hits*. This is the number of times the aircraft can take damage before it has been shot down.

The Sopwith Camel can take 1 hit before being shot down, while *L42* can take 10 hits.

9.1.3   *Speed*. This is the number of hexes the aircraft can be moved during the Aircraft Phase. Unlike ships, aircraft do not need to maneuver—they have no facing, and are simply picked up and placed where they want to go.

The Sopwith Camel's maximum speed is 18 hexes per turn. *L42* can only move 11 hexes each turn.

9.1.4   *Altitude*. The altitude value for an aircraft represents the maximum height it can achieve. As stated on p. 7, each level of altitude represents one nautical mile (6080 ft).

Both the Sopwith Camel and *L42* can reach an altitude level of 3 (18,240 feet).

9.1.5   *Attack Rating*. The attack rating indicates how effective an aircraft is in combat against other aircraft.

The Sopwith Camel adds +5 to its die roll when in combat with another aircraft, while *L42* only adds +3.

9.1.6   *Bombs*. This lists how many bombs the aircraft carries and the amount of damage done by each bomb.

The Sopwith Camel has no bombs. *L42* carries 11 bombs, each of which does 4 points of damage.

9.1.7   *Torpedoes.* If the aircraft can carry any torpedoes, they are listed here.

Neither the Sopwith Camel nor *L42* carries any torpedoes.

9.2   **The Aircraft Phase**. During each Aircraft Phase, players alternate moving their aircraft on the board, one at a time, beginning with the side that has more aircraft. In case of a tie, roll a die; the side that rolls higher can choose to move first or second. A side must move all of its Zeppelins first, before moving any aeroplanes.

If either side begins the Aircraft Phase with more than twice as many aircraft than the other, that side should move two at a time; if the ratio is more than three to one, the side with more aircraft should move three at a time; and so on.

---

[1] Yes, we know; "Zeppelin" is a specific manufacturer of rigid dirigible aerostats, and not a generic term for all lighter-than-air craft. However, as the more general term "airship" is too close to "aircraft", which is used here to encompass both aeroplanes and Zeppelins, we felt the Count wouldn't mind us appropriating his name.

For example, the British have 7 planes, while the Germans have two planes and a Zeppelin. Because the British have more than twice as many aircraft, they should move two planes, then the Germans move their Zeppelin, and so on.

After all aircraft have moved, air-to-air combat ("dogfighting") ensues, then ships conduct anti-aircraft (AA) fire, and finally, surviving aircraft may make bomb and/or torpedo attacks.

9.2.1   *Fuel Consumption (Aeroplanes only)*. At the end of the Aircraft Phase, each aeroplane should have its fuel rating reduced by one. If the plane was involved in a dogfight (see below), the fuel rating should be reduced by two.

For example, a Sopwith Camel begins with a fuel rating of 12; after two turns, this will be down to 10. If the Camel engages in air-to-air combat this turn, the fuel level will drop to 8.

If an aeroplane's fuel level ever reaches zero, the plane crashes and is removed from the game.

9.3   **Movement**. When moving, an aircraft is simply picked up and moved to its new location. The only restriction is that this cannot be farther from the starting location than the plane's speed. Thus, the Sopwith Camel can be moved up to 18 hexes from its starting position.

An aircraft is not required to move; Zeppelins can hover, while at one nautical mile per hex, it is assumed that an aeroplane can circle in place if desired. An aeroplane will still expend fuel whether or not it actually moves on the game board.

After it has been moved, the aircraft's altitude needs to be recorded. Zeppelins may only change altitude up or down by one level per turn; aeroplanes may increase altitude by one level, or descend as far as desired.

9.3.1   *Takeoff & Recovery (Aeroplanes only)*. Aeroplanes will typically not begin the game in the air; rather, they will take off as needed. Additionally, as each has a limited amount of fuel available, it will generally be necessary to recover planes before they crash.

Aeroplane takeoffs are declared during the End Phase; at this time, their playing pieces are simply placed on the airstrip or aircraft carrier from which they will take off. Their first movement will not occur until the subsequent Aircraft Phase, at which time they may only use half their movement rating (rounded up). For example, the Sopwith Camel may only move 9 hexes during its first turn in the air.

Up to three aeroplanes may take off from an airstrip or aircraft carrier per turn.

Recovery of aeroplanes occurs during the Aircraft Phase; the plane is simply moved onto the airstrip or aircraft carrier, and then removed from the board. Planes may only use half their movement (rounded up) in the turn in which they land. Airstrips may recover two planes each turn; aircraft carriers may only recover one plane per turn. In addition, aircraft carriers may not recover planes in any turn when it launched one or more aeroplanes.

Aeroplanes cannot be refueled or rearmed during the game. If a plane takes off again after it has landed, it will not regain any lost fuel points, bombs, or torpedoes.

Certain Zeppelins may also carry aeroplanes; they may launch up to two planes per turn. A Zeppelin may attempt to recover one plane each turn, but not in any turn when it launched one or more planes. When a Zeppelin attempts to recover a plane, roll a die: if the result is 6 or higher, the attempt is successful. Otherwise, the attempt fails, and another attempt can be made in the following turn.

9.4   **Combat**. There are three basic types of combat in which aircraft can engage: dogfighting, bombing attacks, and torpedo runs.

Some aircraft also carry light guns and/or depth charges (see p. 31); these weapons are used in the same manner as ships, with the restriction that they may only be used while at altitude level zero. Aircraft-mounted light guns have a 360° field of fire, and cannot be used for AA fire (see p. 28); their presence is already factored into the aircraft's dogfight attack value.

9.4.1   *Dogfights*. A "dogfight" is combat between two or more aircraft. A dogfight consists of all opposing aircraft that are in the same hex and at the same altitude as each other. Thus, a single dogfight can contain anywhere from 1 to 100 or more aircraft on either side.

To resolve a dogfight, each side selects an aircraft to fight first. One die is rolled for each, adding its attack rating; re-roll any ties. If one side has more than twice as many aircraft in the dogfight as the other, that side may roll two dice

and use the higher roll as its result; if the ratio is more than three to one, the side with more aircraft may roll three dice and choose the highest; and so on.

The chosen aircraft with the lower total takes a hit; as most aircraft can only take one hit before being destroyed, this would remove the aircraft from the board. In the case of aircraft that have two or more hits, the damage should be noted; when the number of hits taken equals or exceeds the aircraft's hit total, it has been shot down.

Instead of causing a hit, the side with the higher total may instead choose to break off the dogfight, in which case the combat between those two planes is over. Otherwise, continue rolling until one aircraft or the other has been shot down. An aircraft with an attack rating in parentheses (e.g., "(+1)") *must* choose to break off combat if it wins a roll; it is unarmed, and therefore unable to cause a hit to an opposing aircraft.

When an aircraft has been shot down or breaks off, the owning side should select another aircraft to continue the dogfight, and the cycle repeats itself. Once aircraft from only one side remain, the dogfight is over.

Note that aircraft which break off from the dogfight will remain in the same hex and at the same altitude; however, they are no longer part of the fight. An aircraft that breaks off from a dogfight cannot drop bombs or launch torpedoes later in the same Aircraft Phase, nor can it attack with light guns or depth charges in the upcoming Combat Phase.

9.4.2 *Bombing Attacks.* Any aircraft with bombs on board may attempt to bomb a ship in the same hex. An aircraft may also attempt to bomb an enemy Zeppelin in the same hex and at the same or lower altitude.

The player first determines how many bombs the aircraft will drop; an aircraft may only attack one target per Aircraft Phase. Once bombs have been dropped, they are gone and cannot be used again. For example, *L42* has 11 bombs. If it chose to use 4 bombs against an enemy destroyer, it would have 7 bombs remaining for use later in the game.
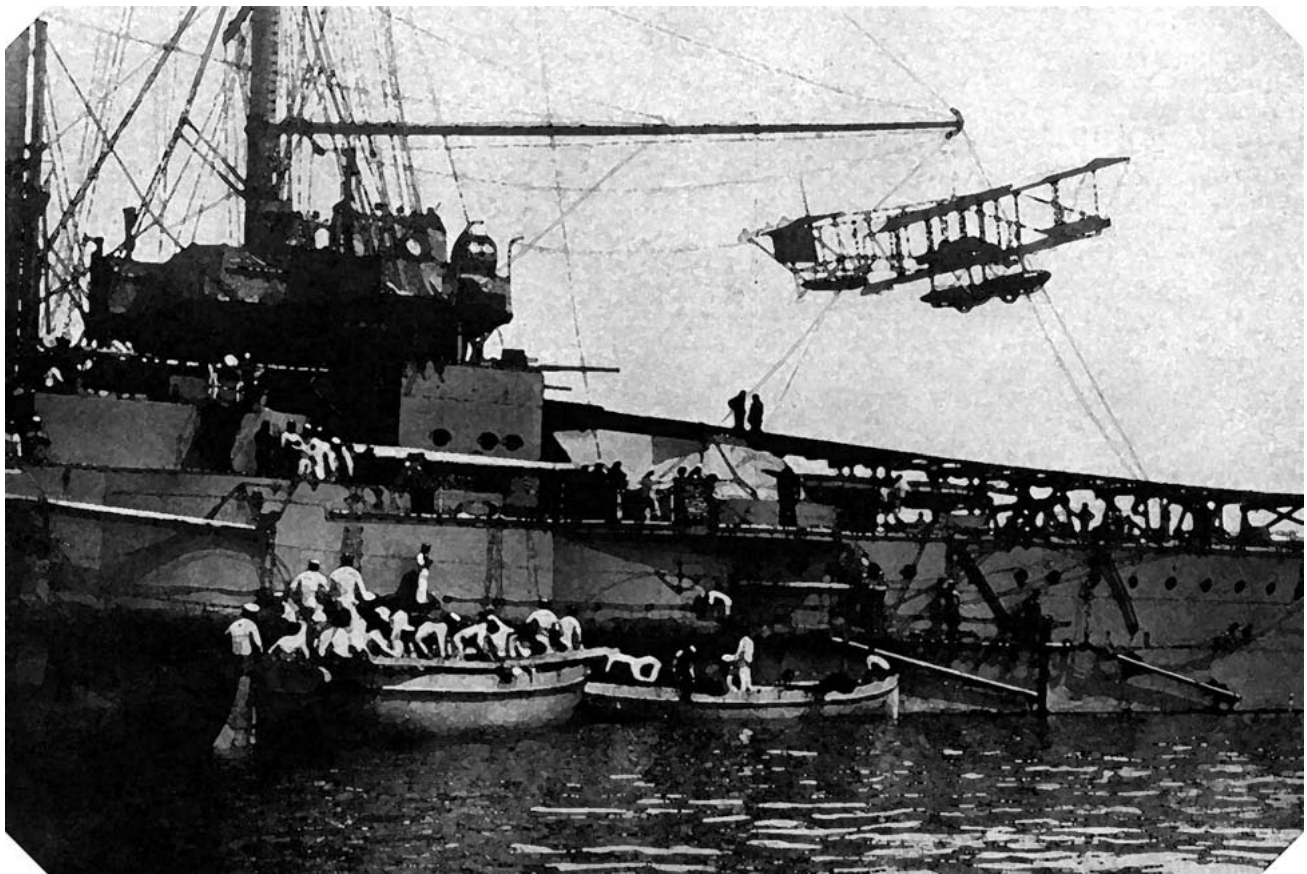
Next, the player rolls a die for each bomb used against the target. Apply the following modifiers:

- **Altitude[1]**:
  - Level 0   0
  - Level 1   -1
  - Level 2   -2
  - Level 3+   No attack is possible
- **Evasive Maneuvers**:   -1 per "E" plotted by the target
- **Speed[2]**:
  - Target speed 0-1   +1
  - Target speed 2-3   0
  - Target speed 4-5   -1
  - Target speed 6+   -2
- **Target Size[3]**:
  - Very Small   -2
  - Small   -1
  - Medium   0
  - Large   +1
  - Very Large   +2
  - Huge   +3

Each die that comes up 8 or more will hit its target. In cases where a total modifier of -3 or worse results, use the following chart:

Modifier	Unmodified Rolls Needed To Hit
-3	10, plus a second roll of 3 or better
-4	10, plus a second roll of 7 or better
-5	10, plus a second roll of 9 or better
-6	10, plus a second roll of 10
-7 or worse	No chance of hitting

Any bombs that hit a ship must then attempt to penetrate the target's deck armor value. Re-roll each die that hits its target; if the result exceeds the target's deck armor, the armor has been penetrated. Each bomb that penetrates the deck armor inflicts a number of damage points equal to its damage rating.

---

[1] In the case of aircraft bombing Zeppelins, use the difference in altitude to determine the modifier.

[2] Only when attacking ships; use a speed modifier of zero when bombing Zeppelins.

[3] Zeppelins are size class Very Small; this reflects not only their actual size, but the difficulty in hitting them with bombs.

For example, *L42* is dropping 7 bombs on HMS *Tiger* from an altitude of 2 (-1 modifier). *Tiger* is moving at speed 4 (-1), and is size class Large (+1). The overall modifier is -1, which means any roll of 9 or 10 will hit. *L42* hits with two bombs, which are then re-rolled against *Tiger*'s deck armor value (6). These dice come up 4 and 8, which results in one penetrating hit. *L42*'s bombs have a damage of "x4", which means they inflict four points of damage.

Bombs that hit Zeppelins automatically do damage, no penetration roll necessary; instead, roll one die per damage point. The result is the number of hits inflicted; e.g., a "x3" bomb would inflict a total of 3d hits on a Zeppelin. This damage should be noted; when the number of hits taken equals or exceeds the Zeppelin's hit total, it crashes. As you can see, Zeppelins are none too keen on being hit by bombs…

9.4.3   *Torpedo Runs.* Aircraft with torpedoes may launch them at enemy ships.

Torpedoes launched by aircraft are treated exactly as those launched by ships (as described on p. 21), with the exception that air-launched torpedoes are resolved in the same turn as they are fired; i.e., in the upcoming Combat Phase. Simply record the intended target; there is no need to declare a firing arc.

Aircraft may only launch torpedoes from altitude level zero.

9.5   **Anti-Aircraft Fire**. After aircraft have conducted dogfights, but before they can make bombing or torpedo attacks, they may be shot at by enemy ships.

Most ships have an anti-aircraft rating (A.A.R.), which is based upon the number and type of small-caliber and machine guns mounted on the ship. After all aircraft have moved, players must decide where each ship will concentrate its fire; each A.A.R. point is assigned to an individual aircraft.

Finally, roll one die for each A.A.R. point. All ships must assign their A.A.R.'s before any dice are rolled. The following chart determines the chance of scoring a hit with each die:

.

U43 (submarine)									
Hull	**Speed**	**Belt**	**Ends**	**Deck**	**Size**	**Mod.**	**C&C**	**C.R.**	**A.A.R.**
1	3/2	5/5	5/5	5	V.Small	-2	-	-	1
Armament		**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**			
Light Guns		+3	1/2/3	1/0/0*	x1	[OO]			
DEU 20" Torpedoes		-	5	-	x5	[OO][OO][O][O]			
Damage Track									
Hull Hits		[O]		-		-		-	
Speed		3/2		-		-		-	
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
-	-	-	-	-	-	-	-	-	

	Altitude:		
Range	Level 0	Level 1	Level 2
Same hex	8-10	9-10	10
One hex	9-10	10	-
Two hexes	10	-	-

For each die that falls within the indicated range, a hit is scored. As most aircraft can only take one hit before being destroyed, any hit will usually remove the aircraft from the board. In the case of aircraft that have two or more hits, the damage should be noted; when the number of hits taken equals or exceeds the aircraft's hit total, it has been shot down.

10   SUBMARINES

Like aeroplanes, submarines were still an experimental weapon at the beginning of the twentieth century; however, their potential was recognized very quickly. By the end of the Great War, submarines had become a permanent and deadly part of naval combat.

Because of their secretive (some would say "treacherous") nature, when using submarines it is essential that a certain level of trust exists between players. Players may also make use of a referee (see p. 7).

Unless otherwise contradicted by the rules in this section, submarines are treated exactly like surface ships.

10.1   **Ship Data Cards**. A sample submarine data card for the German submarine *U43* has been filled out at the top of this page.

10.1.1   *Armor*. Submarines have a single armor value used against all attacks.

U43 has an armor value of 5.

10.1.2   *Speed*. Submarines have two values listed in each box on the speed track of the ship data card. For example, the German *U43* has "3/2" listed in its first speed box. This means the submarine has a speed of 3 while surfaced, but only 2 while submerged.

10.1.3   *Command & Control/Command Radius*. Submarines are considered to be squadrons unto themselves, and therefore have no need of a command & control rating or command radius.
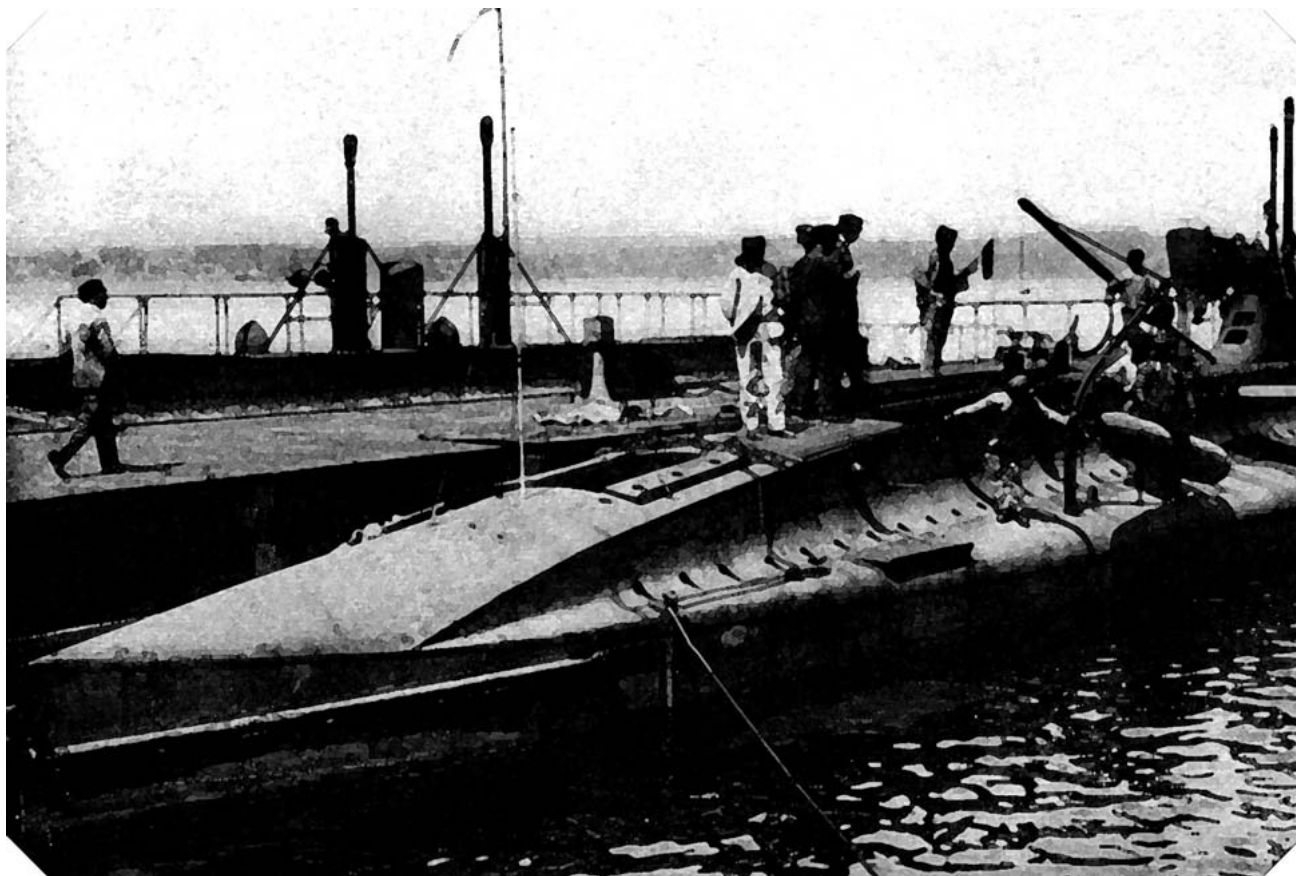
10.1.4   *Notes*. Most submarines can only descend to shallow depth (see below); if it can go deep, this will be indicated on the ship data card.

　U43 has a maximum depth of shallow.

10.2   **Movement**. If a submarine begins the Movement Phase surfaced or at periscope depth, it may move during the squadron movement segment; however, at shallow or deep depth, submarines must move during the individual ship movement segment. Although submarines are always considered to be in command, under the surface they are unable to see what surface ships are doing, and therefore do not get the benefit of reacting to individual ship movement.

10.2.1   *Depth*. A submarine's movement orders must include the depth at which it is operating that turn:

Level	Approximate Depth
Surfaced	At the surface; not submerged.
Periscope	Just below the surface.
Shallow	Up to 200 feet.
Deep	More than 200 feet.

　If the submarine is surfaced, it may use the faster speed listed in the appropriate box on its data card; otherwise, it must use the slower speed.

　In order to launch torpedoes, a submarine must either be surfaced or at periscope depth.

10.2.2   *Collisions & Ramming*. Submarines can only ram or be rammed while on the surface or at periscope depth; accidental collisions between submarines are only possible if they are at the same depth.

10.2.3   *Detection*. While a submarine is on the surface, its model should be placed on the board. However, once submerged, the submarine should be removed from the board and its location recorded on a sheet of paper. If you have a hexgrid with numbered hexes, that will work perfectly; otherwise, the submarine's location will need to be recorded in reference to some fixed point on the board.

　At the end of the Movement Phase, ships and aircraft may detect submarines in their immediate area.

- Any submarine at periscope depth and within one hex of an enemy ship is automatically detected by that ship, as it is visible as a shadow in the water. Aircraft will automatically detect submarines at periscope depth within two hexes of their position. While it cannot be attacked with gunfire, a submarine at periscope depth is vulnerable to torpedo, bomb, and depth charge attacks.
- Submarines at shallow depth can be detected by rudimentary sonar equipment. Any submarine at this depth and within one hex of one or more enemy ships should roll a die for each; on a 5 or less the submarine has been detected by that ship. It cannot be attacked with gunfire or bombs, but it is susceptible to torpedoes and depth charges. Aircraft cannot detect submarines at shallow depth.
- Submarines at deep depth cannot be detected.

Any submarine that has been detected must reveal its location. It can only be attacked by the ship(s) and/or aircraft that have detected it; the only exception is for depth charge attacks (see below). Detection cannot be "passed" from one ship or aircraft to another.

10.3 **Combat**. Most forms of attack are modified slightly when involving submarines.

10.3.1 *Gunfire*. While a submarine is submerged, it cannot fire its guns, nor can it be attacked with guns.

10.3.2 *Torpedoes*. As stated above, submarines must be at periscope depth or surfaced in order to launch torpedoes.

A submarine can only be hit by a torpedo while at the surface or periscope depth; a submarine at shallow or deep depth is unaffected by torpedo attacks.

For example, HMS *Tiger* fires a torpedo at *U43*, which is currently surfaced. The torpedo attack will only occur in the next Combat Phase if *U43* remains at the surface or periscope depth.

10.3.3 *Aircraft*. Submarines may only conduct anti-aircraft (AA) fire while at the surface. Aircraft may bomb submarines at the surface normally;

bomb attacks against submarines at periscope depth may be conducted with a -1 to-hit penalty. Submarines at shallow depth or lower are unaffected by bomb attacks.

10.3.4 *Depth Charges*. The only way to attack an undetected submarine is through the use of depth charges. A ship equipped with such weapons will have the fact indicated on its data card. For example, modified British *'R'* class destroyers have 30 depth charges available.

Depth charges are expendable weapons; once used, they should be crossed off the ship data card.

Depth charges will only affect submarines in the same hex as the attacking ship. A ship may fire depth charges without knowing if a submarine is present in its hex; however, the submarine's location will only be revealed if it is struck by a depth charge.

To make a depth charge attack, first determine how many charges will be used, then roll that number of dice. Each die that comes up 8 or more scores a hit on the target.

Depth charge to-hit rolls are modified by the following:

- **Depth**:
  - Periscope   -1
  - Shallow   -2/-3
    (Use the -2 modifier if the firing ship has detected the submarine; otherwise, use -3)
  - Deep   n/a
- **Speed** (refers to the number of MPs actually expended, not the total number available; target and firer modifiers are cumulative[1]):
  - Target/firer speed 0-1   +1
  - Target/firer speed 2-3   0
  - Target/firer speed 4-5   -1
  - Target/firer speed 6+   -2

As with other attack forms, cumulative modifiers of -3 or worse still have a chance of hitting:

---

[1] For example, if the firing ship is moving at a speed of 4, and the target ship is moving at a speed of 6, then the overall speed modifier would be a –3 (-1 for the movement of 4, and –2 for the movement of 6).

Modifier	Unmodified Rolls Needed To Hit
-3	10, plus a second roll of 3 or better
-4	10, plus a second roll of 7 or better
-5	10, plus a second roll of 9 or better
-6	10, plus a second roll of 10
-7 or worse	No chance of hitting

If there is more than one submarine in the hex, separate attack rolls should be made against each—this includes any submarines friendly to the ship dropping the charges.

Each depth charge that hits inflicts one point of damage on the submarine.

As an example, an *'R'* class destroyer is dropping 5 depth charges in the hex containing *U43*. The destroyer is moving at speed 4 (-1 modifier), while the submarine is speed 2 (0) and is at shallow depth (-2). This gives an overall modifier of -3, which means in order to score hits, the destroyer will have to roll a 10 and then re-roll, getting a 3 or higher. The dice are rolled, coming up 2, 4, 5, 7, and 10. The 10 is re-rolled, coming a 4. This means one hit has been scored, causing one point of damage.

10.4   **Damage**. Submarines roll for damage in the same way as surface ships; however, any critical hits suffered by a submarine are always rolled on the "Torpedo Critical" column of the chart (see p. 23).

Once a submarine has taken 50% of its hull hit total, it may no longer descend below shallow depth; after taking 75% of its total hull hits, a submarine may only operate at periscope depth.

11   CONVERSIONS

In this section, we present the process by which we converted historical ships to *Grand Fleets* game values.

For reference purposes, our old friend HMS *Tiger* is used as an example throughout this section.

11.1   **Hits**. The hit total for a ship depends upon its displacement in tons. Whenever possible, we used the "empty" weight (sometimes called "normal"), as opposed to the "loaded" (or "battle") weight. The formula is: $\text{Weight}^{0.8} / 150$.

HMS *Tiger* has an empty weight of 28,430 tons. Raising this number to the 0.8 power, we get a value of 3656; dividing by 150 yields a hit total of 24.

11.2   **Speed**. The speed of a ship is based upon its real-world speed in knots (one knot = one nautical mile per hour). Divide the knots by 5, and round off.

HMS *Tiger* has a speed of 29 knots; this results in a *Grand Fleets* movement value of 6 (29 / 5 = 5.8).

11.3   **Armor**. Armor was one of the more difficult values to assign, as our sources are hardly consistent in how they break down armor thicknesses. For the most part, the important values are the ship's belt and deck armors; for each, we used the greatest thickness listed. If there is an end value given, we used that—otherwise, we used half the belt thickness.

To convert real-world armor to *Grand Fleets* values, you first need to determine what kind of armor was used:

Date in Service	Armor Type	Factor
Before 1893	Composite/compound	0.4
1893-1900	Harvey Nickel steel	0.5
1900-1910	Krupp armor	0.6
1910 onwards	Improved Krupp	0.7

If you know the exact type of armor used on the ship, that's wonderful; otherwise, use the date in service as a guide. The equation is: (Armor Thickness x Factor) + 5.

HMS *Tiger*'s armor thicknesses are belt 9", ends 3", deck 3". As *Tiger* was laid down in 1912, the improved Krupp factor applies (0.7). This translates to game values of belt 11 ([9 x 0.7] + 5 =

6.3 + 5 = 11.3), ends 7 ([3 x 0.7] + 5 = 2.1 + 5 = 7.1), and deck 7 ([3 x 0.7] + 5 = 2.1 + 5 = 7.1).

11.4   Guns. For reference purposes, all available gun data have been compiled into a table of game values, starting on p. 91.

The gun codes are given in a standardized format, such as *UK 14"(36)/50 Mk.VI*. This means that it is a British gun (UK), with a caliber (barrel diameter) of 14" (36cm), and a barrel length of 50 "calibers" (i.e., 50 times the caliber, or 700"). "Mk.VI" is the model designation, which varies among nationalities.

When attempting to find the right gun to fit an historical ship design, a few conventions should be kept in mind:

- The nation codes are given according to their spelling in their native languages; e.g., "ESP" for Spain, "SVE" for Sweden, and so on. As Russian and Japanese use non-Latin alphabets, they have been abbreviated according to their spelling in the French language; RUS for "Russie" and JAP for "Japon".
- Calibers are given in both inches and centimeters, as some sources use Imperial measurements while others use metric. Inches have been rounded to the nearest integer (e.g., HMS *Tiger*'s 14" guns are actually 13.5").
- Many nationalities (notably France and Russia) simply used the year of the design as a model number; the French 19cm/50 M1902 is such a gun. However, since years are given for all guns on the table, these model numbers have been omitted. Thus, the 19cm/50 M1902 is listed as *FRA 8"(19)/50*, with "1902" in the "Year" column.
- Other nations (notably Germany) often used "C" and the last two digits of the design year as a model number; the German 28cm/52 SK C/28 is an example of this. Again, since years are listed for all guns on the chart, these model numbers have been omitted. Thus, the 28cm/52 SK C/28 is simply *DEU 11"(28)/52*, with "1928" in the "Year" column.

- Germany sometimes used "L" and the length of the barrel in calibers as a model number; a good example is the German 35cm SK L/45. As barrel lengths are given for all guns on the chart, model numbers like this have been omitted. Thus, the 35cm SK L/45 is listed as *DEU 14"(35)/45*.
- Other designations (e.g., "Mk.I", "Type 88") have been retained to assist in locating the exact gun type.

If a source does not give any information other than the size of the gun, use the year as a guide. For example, HMS *Tiger* was completed in 1914; thus, if we knew nothing else about her 14" guns, we could simply choose the most recent British 14" gun type, the 50-caliber Mk.IV. While *Tiger* actually carried 45-caliber Mk.V's, in the absence of further information, the Mk.IV's would have been an appropriate choice.

11.4.1 *Rate of Fire Bonus.* A gun's rate of fire bonus (ROF) is equal to the square root of its real-world shots per minute, minus one.

HMS *Tiger*'s 14" guns could fire between 1.5 and 2 rounds per minute; the square root of 1.75 is 1.32. Subtracting 1 from this number, we get 0.32, rounded off to a game ROF of +0.

11.4.2 *Range.* Gun ranges are based upon their listed maximum ranges in yards. Short range is the yardage divided by 7500; medium range is the yardage divided by 3750; long range is the yardage divided by 2500.

HMS *Tiger*'s 14" guns have a maximum range of 23,740 yards. Dividing this by 7500, 3750, and 2500, we get game ranges of 3, 5, and 8.

11.4.3 *Penetration.* The penetration formula is based upon the weight of the shell in pounds, and the muzzle velocity of the gun in feet per second: $Weight^{0.5}$ x MV / 10,000. The penetration at medium range is one-half this value; at long range, it is one-third the base value.

HMS *Tiger*'s 14" guns fire 1400 lb. shells with a muzzle velocity of 2491 fps. Thus, the short range penetration is $1400^{0.5}$ x 2491 / 10,000 = 37.4 x 2491 / 10,000 = 93,204 / 10,000 = 9.

11.4.4 *Damage.* The damage value for the guns assumes there is a direct correlation between the weight of the shell and the weight of the explosive charge; this varied between navies, but the charge

averaged about 3% of the shell weight. Additionally, the more shells fired at the target, the more damage could result. Thus, the important values are the shell weight in pounds, and the rate of fire in rounds per minute. The formula we use is: $ROF^{0.5} \times Weight^{0.4} / 10$.

HMS *Tiger*'s 14" guns have a rate of fire between 1.5 and 2 shots per minute, and a shell weight of 1400. Thus, their damage value is $1.75^{0.5} \times 1400^{0.4} / 10 = 1.32 \times 18.1 / 10 = 24 / 10 = 2.4$, rounded off to 2.

11.4.5 *Firing Arcs*. This was probably the most difficult part of filling out the ship data cards. There is very little information about where a ship's main batteries could fire, and next to no information about the lighter guns. More often than not, our firing arcs are based on ship diagrams, models, and plain old educated guesses. As a rule of thumb, assume that half the main batteries can fire into the [ABCD] arc, and half into the [CDEF] arc, while secondary guns are divided equally between the [AC], [BD], [CE], and [DF] arcs.

11.4.6 *Light Guns*. As noted on p. 11, **Grand Fleets** treats all guns smaller than 4" (100mm) as "light guns", with standard values of:

- ROF +3
- Range 1/2/3
- Penetration 1/0/0*
- Damage x1.

However, the number of light guns in the game may or may not be equal to the number of real-world guns smaller than 4" (100mm) on the ship. Look up the light gun factor for each gun on the ship:

Caliber -or-	Shell Wt.	Light Gun Factor
40mm	1-2 lb.	0.5
50mm	3 lb.	0.7
60mm	6 lb.	0.9
70mm	10 lb.	1.1
80mm	15 lb.	1.3
90mm	20 lb.	1.5

Adding these factors together and rounding to the nearest integer will indicate the number of game-value light guns on the ship.

HMS *Tiger* has two 76mm 12-pounders; each of these has a light gun factor of 1.3; adding these together yields a total of 2.6. This is rounded up to three light guns for game purposes.

11.5 **Torpedoes**. As with guns, the necessary torpedo data have been collected into a chart starting on p. 97. The torpedo codes are similar to gun codes: nationality, followed by size in inches and centimeters, ending with any appropriate identifiers. For example, *UK 21"(53) Mk.II* is a British 21" (53cm) torpedo, Mark II.

11.5.1 *Range*. This is based upon the longest given range for the torpedo at any speed. Take this number in yards and divide by 2025.

HMS *Tiger*'s torpedoes have a range of 5000 yards at 35 knots, and 8000 yards at 29 knots. This yields a game range of 8000 / 2025 = 4.

11.5.2 *Damage*. Torpedo damage is based upon the size of the warhead in pounds: $(Weight \times 33)^{0.4} / 10$.

11.6 **Anti-Aircraft Rating**. To determine the ship's anti-aircraft rating (A.A.R.), first refer to the number and size of the real-world small-caliber guns on the ship:

Caliber -or-	Shell Wt.	AA Factor
40mm	1-2 lb.	1.2
50mm	3 lb.	1.1
60mm	6 lb.	1.0
70mm	10 lb.	0.9
80mm	15 lb.	0.8
90mm	20 lb.	0.7

Add these numbers together, and then add 0.5 for each machine gun carried by the ship. Finally, round the sum off to the nearest integer.

For example, HMS *Tiger* has two 76mm 12-pounder guns and five machine guns. Looking on the chart, we see that the 12-pounders each have an AA Factor of 0.8, for a total of 1.6. The machine guns add an additional 2.5 to this result, giving us a final total of 4.1, rounded off to an A.A.R. of 4.

11.7 **Damage Track**. To create the ship's damage track, divide the total number of hull hits by 4, dropping any remainder. Place this number of hits in each box on the "Hull Hits" line of the damage track. If there is 1 hull hit left over, place it in the first box; if there are 2 hits left over, place

the second in the third box; if there are 3 hits left over, place the third in the second box.

The speeds in each box of the "Speed" line of the damage track are affected by damage, and decrease as the damage increases. The speed in each box is calculated by multiplying the ship's maximum speed in knots by 0.2, 0.16, 0.12, and 0.08 respectively.

For example, HMS *Tiger*'s speed breakdown is 5.8 (29 x 0.2), 4.64 (29 x 0.16), 3.48 (29 x 0.12), and 2.32 (29 x 0.08); these values round off to 6, 5, 3, and 2.

11.8   **Hit Location Track**. The final step in creating a ship card is determining the Hit Location track.

To begin with, note the number of hull points possessed by the ship. Then, for each class of gun, multiply the number of distinct gun positions or turrets by 9, and divide by the number of hull points, rounding to the nearest integer. This will yield the number of slots that each gun class takes up on the track. These slots are then assigned to the track in descending size order.

For example, HMS *Tiger* has 24 hull points and four 14" gun turrets. Multiplying 4 by 9, and dividing by 24, yields 1.5, rounded up to two. Therefore, damage slots one and two are given a 14" gun (turret).

There are twelve 6" guns; multiplying by 9 and dividing by 24 yields 4.5, which is rounded up to 5. Therefore, slots three through seven are assigned a 6" gun.

Finally, there are three light guns, so multiplying by 9 and dividing by 24 yields 1.125, which is rounded down to one. Therefore, slot eight is assigned a light gun ("LG").

In the case where a ship has a relatively low number of hull points, compared to a high number of gun positions, it is entirely possible that multiple gun types (and/or multiples of a single gun type) will be assigned to each position along the hit location track. This is done by "wrapping around" from slot 9 back to slot 1.
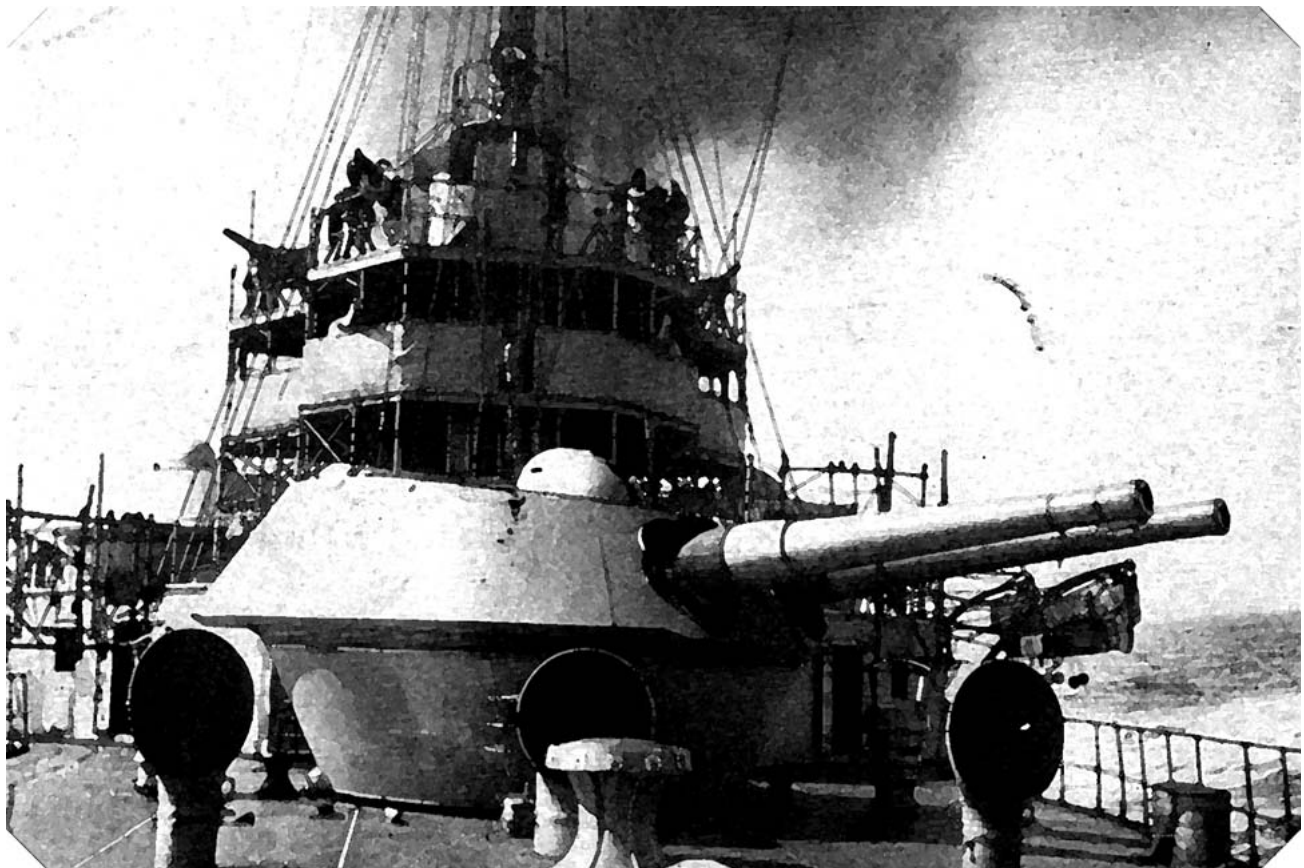
12   OPTIONAL RULES

This section contains several additional rules which may be added to *Grand Fleets*, albeit at the expense of slightly slower play.

12.1   **Crew Quality**. The quality of crew members often varied greatly from country to country, and even between units of the same nationality. *Grand Fleets* offers five levels of crew quality, each of which is represented by a die roll modifier:

Crew Quality	Modifier
Poor	-2
Fair	-1
Average	+0
Great	+1
Excellent	+2

These modifiers apply to all attack to-hit rolls; e.g., gunfire, torpedo attacks, bombing runs, dogfighting, etc. They are also added to the fire and flooding rolls made because of critical hits.

For example, HMS *Tiger* is considered to have a "great" crew. This means that all of its attacks receive an additional +1 modifier to the to-hit roll. A Sopwith Camel with an "excellent" pilot would have its dogfight attack modifier increased from +5 to +7.

12.2   **Smoke**. Most ships of the era in which this game takes place were coal-fired. The resulting funnel smoke, whether deliberate or accidental, could and did lead to many tactical problems. *Grand Fleets* represents this effect in two ways: gunnery interference from intentionally-laid smoke screens, and downwind interference from a ship's own funnel smoke.

12.2.1   *Smoke Screens*. While all ships theoretically could lay smoke screens, it was primarily the job of the destroyers to do so. Therefore, for our purposes, only Very Small ships may lay smoke screens.

To lay smoke, a ship merely notes in its movement orders that it will do so. As the ship moves during the Movement Phase, a smoke marker is placed in each hex the ship occupies during its movement.

Smoke counters in no way restrict movement; however, any line of fire (LoF) traced through smoke results in a -1 modifier to the to-hit roll per smoke marker.

12.2.2   *Downwind Smoke*. Downwind smoke interference occurs when ships try to target ships directly, or nearly directly, downwind from their position. To use this rule, the wind direction must be determined; see below for details.

If a line of fire (LoF) passes through the adjacent hex downwind of the firing ship, then smoke interference has occurred. The effect of this is an additional -1 modifier which is added to all to-hit rolls.

For example, the wind is blowing to the southeast (SE), and HMS *Tiger* wishes to fire her guns at SMS *Moltke*. When the line of fire (LoF) is traced, it passes through the hex directly SE of *Tiger*, indicating that her funnel smoke will be in the way. Therefore, *Tiger*'s to-hit rolls will suffer an additional -1 to-hit penalty.

12.3   **Night**. Some scenarios may indicate that a battle is being fought at night (for example, the Battle of Coronel, p. 44). This is relatively easy to simulate in *Grand Fleets*. At night, the following restrictions apply:

- Ships are limited to a visibility (and therefore a maximum attack range) of 12,000 yards (6 hexes).
- There is a -2 penalty applied to all attack rolls.

All other rules remain unchanged.

12.4   **Wind**. Sailing ships will rarely (if ever) be present in a game of *Grand Fleets*; therefore, the wind will play a much smaller role than in earlier time periods. However, it can still have an effect, especially on aircraft.

12.4.1   *Wind Direction*. After the game board has been set up, but before the first Command Phase, designate one direction on the board as "North", with the other directions becoming "South", "Northeast", "Southwest", etc. Then roll 2d on the following chart:

Roll	Direction
2, 3, 4, 5, 7	N
6, 8, 17	NE
9, 13	NW
10, 14	SE
11, 15	SW
12, 16, 19	S
18, 20	Roll again

This determines the direction in which the wind will be blowing at the start of the battle. During each End Phase, roll 2d to determine if any change in the wind occurs:

Roll	Effect
2-3	Shift two hexsides counter-clockwise
4-6	Shift one hexside counter-clockwise
5-15	No change
16-18	Shift one hexside clockwise
19-20	Shift two hexsides clockwise

For example, at the start of the game, the players roll 2d and get a 14, indicating the wind is blowing to the Southeast. During the first End Phase, another die is rolled, coming up 8. This means the wind has shifted one hexside clockwise, or due South.

12.4.2 *Effects of Wind*. During the End Phase, all smoke markers and aircraft should be moved one hex in the direction of the wind.

12.5 **Spotting**. The spotting rules are intended for use at the beginning of a scenario, when opposing forces are first sailing onto the map.
The table below shows the maximum distance at which two ships can spot each other. Simply cross-reference the size classes of the two ships:

Spotter	Target: VS	S	M	L	VL
VS	15	16	17	18	19
S	16	17	19	20	20
M	17	19	20	21	22
L	18	20	21	22	23
VL	19	20	22	23	23

13 FLOTILLAS

Destroyers, torpedo boats, and submarines in *Grand Fleets* are typically going to have a very short life-expectancy (a 1,000-ton destroyer will have but 2 hull hits). As it can be quite frustrating for players to keep track of dozens of these little ships, we introduce the concept of "flotillas"; i.e., groups of small ships that act as one.

This rule is completely optional; players who wish to move and attack with all of their tiny vessels individually may do so — however, the decision on whether or not to use flotillas must be made before the game begins, and cannot be changed in mid-battle. In other words, a player who groups 6 destroyers into a flotilla cannot later split them off into separate ships.

It is also important to note that a flotilla representing a number of destroyers, torpedo boats, or other extremely small craft is going to be an abstract representation of the actual ships present in the flotilla itself. This is done to speed up play, and to ensure that the ships comprising the flotilla don't actually become more combat effective than they would be operating individually.

13.1 **Basic Concept**. The most important rule for flotillas is this: for nearly every purpose, they are considered a single ship. To further enforce this rule, a flotilla should be represented on the game board by a single playing piece, not a group of pieces representing all of the individual ships.

13.2 **Ship Data Card**. A sample flotilla data card has been completed on p. 39.

13.2.1 *Name*. This should be the name of the flotilla, not the names of each individual ship.

13.2.2 *Class*. The members of a flotilla do not have to be of the same class; however, a flotilla cannot mix surface ships and submarines.
Our sample flotilla is made up of one British *Cambrian*-class light cruiser acting as the flagship, one *Lightfoot*-class and fourteen *Repeat "M"*-class destroyers.

13.2.3 *Hits*. A flotilla has a number of hull hits equal to the sum of the hull hits possessed by its component ships.
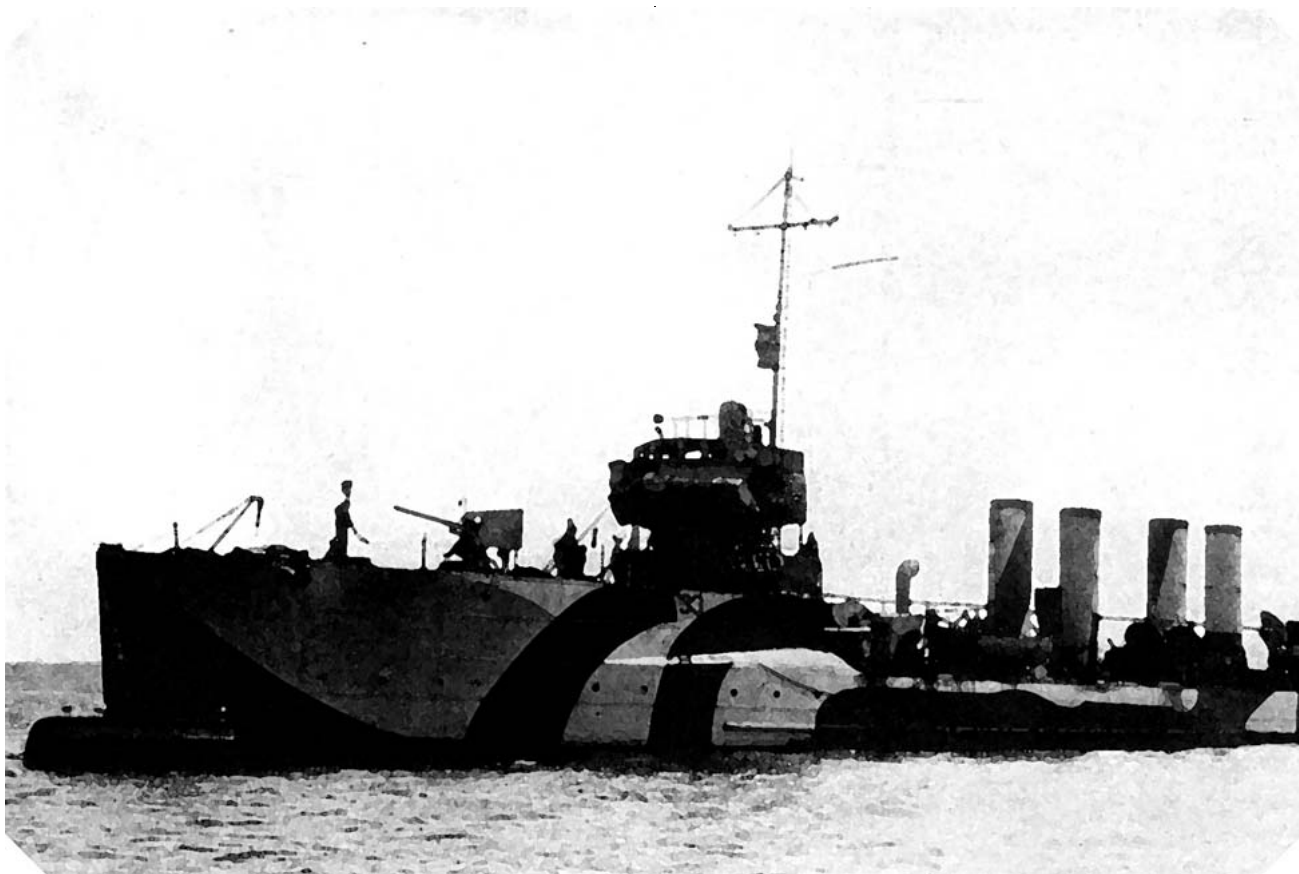
The *Cambrian*-class light cruiser has 5 hull hits, while the *Lightfoot*-class destroyer has 2 hull hits, as do the *Repeat "M"*-class destroyers. Therefore, the flotilla's total is 35 hull hits.

13.2.4 *Speed*. The flotilla will have the speed value of its slowest member.

The *Lightfoot*-class destroyer can move 7, as can the *Repeat "M"*-class destroyers; however, the *Cambrian*-class cruiser can only move 6, so its movement value is used for the flotilla.

13.2.5 *Armor*. The armor values of the flotilla should be comprised of the most predominant values of its component ships' armor values. As just about every ship that could be part of a flotilla has armor values of 5, a flotilla's armor values will almost always be 5/5 for its belt, 5/5 for its end, and 5 for its deck.

Both the *Lightfoot*- and *Repeat "M"*-class destroyers have armor values of 5/5, 5/5, and 5. So even though the *Cambrian*-class cruiser is more heavily armored, with values of 7/7, 6/6, and 6, the armor values of the flotilla are 5/5, 5/5, and 5.

In the case where there are an equal number of ships present from more than one class of ship, and those armor values differ, the lower armor values are always used.

13.2.6 *Size*. Only Very Small ships may be formed into a flotilla. Therefore, a flotilla's size is always Very Small, its to-hit modifier is always -2, and the Command Radius is always 3. The C&C rating is 1 per ship in the flotilla.

Exception: A flotilla may contain one ship of size class Small (the "flotilla leader"), provided there are at least three Very Small ships in the flotilla. A flotilla leader increases the C&C rating and Command Radius by 1.

Our sample flotilla has 16 ships with a flotilla leader, and therefore has a C&C rating of 17.

Note that there is no maximum size restriction on flotillas. Historically, however, flotillas rarely exceeded 14 or 15 destroyers. At Jutland, for example, the British 4th Destroyer Flotilla included 19 destroyers, while our example includes 15 destroyers with a light cruiser as its flagship.

13.2.7 *Anti-Aircraft Rating*. The anti-aircraft rating (A.A.R.) of a flotilla is the sum of the A.A.R.'s of the ships in the flotilla.

11th Destroyer Flotilla HMS *Castor* (Flagship; *Cambrian*-class light cruiser), 1x *Lightfoot*-class Destroyer, 14x *Repeat "M"*-class Destroyers									
Hull	**Speed**	**Belt**	**Ends**	**Deck**	**Size**	**Mod.**	**C&C**	**C.R.**	**A.A.R.**
35	6	5/5	5/5	5	V.Small	-2	17	3	35
Armament		**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**			
UK 6"/45 Mk.xII		+1	3/6/9`	3/1/1*	x2	[OO]			
UK 4"/45 Mk.V		+3	2/4/7	1/1/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOO]			
Light Guns		+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO]			
UK 21" Torpedo		-	4	-	x5	[OO][OO][OO][OO][OO][OO][OO][OO][OO OO][OO][OO][OO][OO][OO][OO][OO][OO OO][OO][OO][OO][OO][OO][OO][OO][OO OO][OO][OO][OO]			
Damage Track									
Hull Hits		[OOOOO OOOO]		[OOOOO OOOO]		[OOOOO OOOO]		[OOOOO OOO]	
Speed		6		5		5		4	
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
6", 4", LG, Torp	4" (x2), LG	4" (x2), Torp	4" (x2), Torp	4" (x2), Torp	4" (x2), Torp	4", LG, Torp	4", LG, Torp	4", LG, Torp	

The *Lightfoot-* and *Repeat "M"*-class destroyers each have an A.A.R. of 2; while the *Cambrian*-class cruiser has an A.A.R. value of 5; therefore, the flotilla A.A.R. is 35.

13.2.8 *Guns*. The guns for the flotilla are simply the aggregate of its component ships' guns. The main difference, however, is that firing arcs are disregarded.

The 11th Destroyer Flotilla has two 6"/45 Mk.xII, 54 4"/45 Mk.V, and 19 light guns.

During the combat phase, each type of gun can fire at up to two targets, per the restrictions shown below. For example, Destroyer Flotilla 1 could pick two targets for the 4"/40 Mk.III guns, and two different targets for her 4"/40 Mk.IV guns. Further restrictions are:

- Up to one half (rounded up) of the gun total for each type of gun may fire at targets in the C or D arcs, with a limit of one target per arc.
- Up to one quarter (rounded up) of the gun total for each type of gun may fire at targets in the A, B, E or F arcs, with a limit of one target per arc.

In no case may the number of each type of gun firing exceed the total number of guns of that type.

13.2.9 *Torpedoes*. As with guns, the torpedoes carried by the flotilla are simply an aggregate of its component ships' torpedoes.

13.2.10 *Damage Track*. To create the flotilla's damage track, divide the total number of hull hits by 4, dropping any remainder. Place this number of hits in each box on the "Hull Hits" line of the damage track. If there is 1 hull hit left over, place it in the first box; if there are 2 hits left over, place the second in the third box; if there are 3 hits left over, place the third in the second box.

The number in the first box of the "Speed" line of the damage track is identical to that of the slowest member of the flotilla. The speeds in the second and subsequent boxes are determined by multiplying the maximum speed of the flotilla's slowest ship by .90, .80, and .70 respectively.

The speed breakdown of the 11th Destroyer Flotilla is 5.4 (6 x .90), 4.8 (6 x .80), 4.2 (6 x .70); these values round off to 5, 5, and 4.

13.2.11 *Hit Location Track*. The most complicated part of creating a flotilla is determining the hit location track.

To begin with, note the number of hull points the flotilla has. In the case of the 11th Destroyer Flotilla, this is 35. For each class of gun, multiply the number of distinct gun positions or turrets by 9, and divide by the number of hull points. This will yield the number of slots that each gun class takes up on the track. The manner in which these slots are then assigned to the track

is to start with the largest caliber gun, and assign slots starting with position one. The next size gun then starts with next available slot on the track. Once the ninth slot is reached, start over at position one. This process is repeated until every gun class *and torpedo type* has filled its appropriate number of slots (note that this is different for flotillas; normally, torpedoes are not included on the damage track).

In the case of the 11th Destroyer Flotilla, we'll start with the 6" guns. Multiplying the two 6" guns by 9, and dividing by 35, yields 0.51, which is rounded up to one. Therefore damage slot one is given a 6" gun. The damage slots for the 4" guns are now calculated. There are 54, so multiplying by 9 and dividing by 35 yields 13.9 slots, which is rounded up to fourteen. Therefore, slots two through nine are assigned a 4" Mk.IV gun, as well as slots one through six. Next are the light guns. There are nineteen, so multiplying by 9 and dividing by 35 yields 4.9, which is rounded up to five. Therefore, slots seven through nine, and slots one through two are assigned a light gun, or LG.

Last are the torpedoes. There are thirty-one tubes, so multiplying by 9 and dividing by 35 yields 8.0. Therefore, slots three through nine are assigned a torpedo, as well as slot one. It is also important to note that different ships may have different numbers of torpedoes in their torpedo tubes. It is important to include each torpedo tube using a different number of torpedoes on the damage track.

This completes the hit location track for the 11th Destroyer Flotilla.

14 TABLETOP CONVERSIONS

While *Grand Fleets* has been designed as a hex-based game, it is very easy to convert it for use as a straight tabletop game. This is done by simply converting all movement allowances, and gunfire and torpedo ranges, from hexes to inches.

14.1 **Movement**. We suggest a "two inches equals one hex" conversion. Thus, for every movement point spent, a ship may move two inches. When turning, for every movement point spent a ship may turn up to 60°. Note that ship does not have to turn a full 60° when turning. When turning, simple pivot the ship about its center point.

14.1.1 *Simultaneous Movement*. When performing a simultaneous move, simply move every ship at the same time, within the restrictions given above, and per the normal simultaneous movement rules.

14.1.2 *Line-Ahead Movement*. Anytime a squadron turns when performing a line ahead, simply place a small marker on the table at the point the squadron changes direction. Each following ship will then pivot when it reaches that point on the tabletop.

14.2 **Firing Arcs**. Firing arcs are a little more difficult to translate to the tabletop. But with the aid of a small template, it isn't too cumbersome. By drawing a half-circle on a rectangular piece of paper the size of the bases your ship models are mounted on, and then scribing three 60 degree arcs in that half-circle, you have drawn three of your six firing arcs.

14.3 **Gunfire & Torpedo Ranges**. As with movement, all gunfire and torpedo ranges are now in inches. Simply use the same conversion applied to movement; e.g., a range of 6 hexes translates to a range of 12" without hexes.

15   SCENARIOS

There are eight scenarios in this book, many including one or more hypothetical variants. These variants are historical "what-ifs", and in some cases are provided to more evenly balance the engagement.

15.1   Victory Conditions. Generally, there will be three levels of victory for each force, as well as conditions for losing. These are scenario-specific.

15.1.1   *Victory Point Allocation*. The level of success each force achieves in a scenario is determined by victory points. These victory points are awarded for damaging ships, with bonus points awarded for sinking ships. The allocation of these victory points will be standard in each scenario—however, the level of victory achieved will be scenario-specific. Victory points are awarded as follows.

- Per point of hull damage inflicted = 1 VP
  PLUS
- Per ship sunk = (Hull points) VPs

For example, in the Cape Sarych scenario, the Turkish player sinks the Russian ship *Evstafi*, which has 13 hull points. The Turkish player receives 13 VPs for causing 13 hull points' worth of damage; in addition, because the *Evstafi* was sunk, an additional 13 VPs are awarded, for a total of 26.

15.2   Force Deployment. *Grand Fleets* assumes that each game will be played on a rectangular hex-grid map, with dimensions being roughly 30 hexes by 20 hexes—the exact size doesn't matter. The force deployment will be dependent on the type of scenario being played.

Grand Fleets features two basic types of scenarios; standard meeting engagements, and stern chases. These two types have differing deployment rules, and are discussed below.

15.2.1   *Meeting Engagement*. Meeting engagements are the most typical scenario, and represent opposing forces encountering each other, usually from opposite directions. When setting up for a meeting engagement, the opposing forces enter along the opposing long edges of the hex grid, and are limited to the 10 center hexes of those edges. The entry hexes for each ship are secretly noted in some convenient manner. Once the entry hexes are noted, the movement for the first turn is plotted.

The entry hexes for ships in line-ahead formation do not have to be noted individually. Simply note the entry hex, and the order in which the ships will be entering.

15.2.2   *Stern Chase*. Stern chases typically develop when unequal forces meet, with the inferior force attempting to flee. Typically, the force being pursued is outnumbered, of an inferior quality, or consists of smaller ships which would have a hard time inflicting damage on the pursuers.

To begin with, the pursued force is placed in the center of the game board in any combination of legal squadrons. The pursuing ships are then placed on the board, again in any combination of legal squadrons. They must be placed behind the squadron(s) being pursued.

No ship may be placed within two hexes of its maximum gunfire range.

15.3   Escape. Special victory points are awarded in stern chase scenarios for ships which manage to escape, and also in some meeting engagements. Ships can escape under several different conditions:

- Ships which exit a board edge other than the one entered and have no opposing ships within sighting range (see p. 37), automatically escape.
  OR
- Ships which exit a board edge other than the one entered and have the closest opposing ship at half or more the normal required spotting range (see p. 37), escape on a die roll of 1-2.
  OR
- Ships which exit a board edge other than the one entered, are out of gunfire range, and will never be able to brought back *into* gunfire range, are considered to have escaped. This will usually be the case when ships are able to maneuver out of gunfire range, and are equally as fast (or faster), than any potential pursuing ships.

Any ship which leaves the board but fails to meet the criteria for escape stays on the board, which is then "floated" to allow the movement of the ship to be completed.

For example, in the Falklands scenario, the German player is able to move the *Dresden* off the map with 4 of its 5 hull boxes undamaged. The German player will collect 8 victory points for the *Dresden*.

Ships that escape award a victory point total *to their own side* equal to double the number of undamaged hull boxes they have remaining.

Ships that escape do not give the opposing side any VPs, *unless* the side with the escaping ships currently has a victory level of a draw or worse. If this is the case, an escaping ship awards the opposing side VPs equal to one half of its total (i.e., undamaged) hull boxes. These VPs are above and beyond any which may have already been scored by damaging the ship.

15.4 **Special Conditions**. Any special conditions which apply specifically to the scenario being played will also be listed. These special conditions supercede any normal rules, and will be fully explained in the scenario.

16	CAPE SARYCH

October 29, 1914

16.1 **Introduction**. Shortly after their arrival in Constantinople, the German battlecruiser *Goeben* and light cruiser *Breslau* were purchased by the Turkish government. The *Goeben*, renamed the *Yavuz Sultan Selim*, and the *Breslau*, renamed the *Midilli*, were to operate under the Turkish flag in the Black Sea. Both ships, however, would keep their German crews, and were commanded by Rear-Admiral Wilhelm Souchin aboard the *Goeben*.

Vice-Admiral Andrei Avgustovich Ebergard commanded the Russian Black Sea Fleet, and provided an opponent for the two Turkish ships. The Russians' shipbuilding program for the Black Sea, begun in 1911, would eventually result in four new dreadnoughts. None of these dreadnoughts were completed when war broke out with Turkey, however, so the containment of the *Goeben* had to be carried out by the five existing pre-dreadnoughts in service.

The first encounter between the opposing fleets came just weeks after war broke out. The Black Sea Fleet steamed out of its base at Sevastopol, with the intention of bombarding the coal mines at Trabizond, on the northern coast of Anatolia. The fleet included all five Russian pre-dreadnoughts, as well as several cruisers and destroyers. On the morning of November 17, Trabizond was shelled, after which the fleet headed west along the Turkish coast searching for enemy shipping. Finding none, Ebergard turned his fleet back toward its base at Sevastopol.

Rear-Admiral Souchin quickly received news of the Russian action at Trabizond. Even though his fleet was heavily outnumbered by the Russian fleet, Souchin sailed that afternoon with the intention of engaging the Russians. Due to the Russian navy's poor reputation, Souchin was confident that his two ships would be more than a match for the Black Sea Fleet. Souchin intended to intercept the Russians along the northern coast of Anatolia, but after receiving reports that Ebergard and his ships were heading north to Sevastopol, Souchin changed his course to match that of the Russians.

On the morning of October 29, the *Breslau* was scouting ahead of the *Goeben* as the two ships were nearing the Crimean coast. The conditions were misty and the visibility variable and generally poor, due to patchy fog. Meanwhile, the Russian fleet was in a low visibility formation,

with three cruisers fanned out in front of the main column. The accompanying destroyers were in two columns, behind and to the side of the pre-dreadnoughts. At about 11:40 AM, the Russian cruiser *Almaz* sighted smoke directly ahead of the pre-dreadnoughts, and altered her course to investigate.

The *Breslau* and *Almaz* sighted each other at about the same time, and each immediately fell back to their respective force. Both the *Goeben* and Russian pre-dreadnoughts changed their courses to intercept each other. Ultimately, the smaller ships would play no further part in the engagement.

Because of the low visibility, each admiral was playing a guessing game on where their opponent was, and exactly which way they were heading. Finally, at about 12:10 PM and a range of approximately 8,000 yards, the *Goeben* came into view of the leading Russian ship, the *Evstafi*, which was Ebergard's flagship. Unfortunately, the *Goeben* was still not within sight of the gunnery "master" ship[1], the *Ioann Zlatoust*, 500 yards astern of the *Evstafi*. After five or six minutes, Ebergard decided that he couldn't wait any longer, and fired an opening salvo from the *Evstafi*.

16.2 Russian Forces

Ship	Class and/or Type
Evstafi	*Evstafi*-class battleship
Ioann Zlatoust	*Evstafi*-class battleship
Pantelimon	battleship
Rostislav	battleship
Tri Svititelia	turret ship

16.3 Turkish Forces

Ship	Class and/or Type
Goeben	*Moltke*-class battlecruiser (German ship list)

---

[1] The Russian system of concentrated fire was based on gunnery control by a single ship, or "master" ship, which ideally was the center ship of a three-ship squadron. The master ship would relay range estimates to the other ships in the squadron, or "slave" ships, based on their positions relative to the master ship. It is unclear whether the ships fired massed simultaneous salvos, or fired individually in a strict sequence. In either case, the idea was to have the squadron act as a single ship.

16.4 Victory Points. Standard victory points are awarded for this scenario.

16.5 Victory Conditions

- *Russian Decisive Victory*: Sinking the *Goeben*, with the Turkish scoring 60 victory points or less. Or scoring more victory points than the Turkish.
- *Russian Marginal Victory*: Sinking the *Goeben*, with the Turkish scoring 90 victory points or less. Or not losing a ship, with the *Goeben* not scoring twice the number of victory points than the Russians.
- *Turkish Decisive Victory*: Sinking any Russian ship, with the Russians scoring 5 victory points or less. Or sinking two or more Russian ships, with the Russians scoring 10 victory points or less.
- *Turkish Marginal Victory*: Scoring at least three times as many victory points as the Russians, with the Russians scoring 5 or less victory points. Or sinking any Russian ship, with the Russians scoring 10 victory points or less.
- *Turkish or Russian Draw*: Any other result.

16.6 Deployment. Meeting engagement, with special deployment conditions. The Russian fleet begins the game on the board, in a single squadron in line-ahead formation. The *Goeben* is then placed a random direction and number of hexes away from the lead ship in the Russian squadron. Rules for this placement are as follows:

Roll	Direction from lead Russian ship*
1-3	10:00 o'clock hex row
4-5	12:00 o'clock hex row
6-8	2:00 o'clock hex row
9	4:00 o'clock hex row
10	8:00 o'clock hex row

Roll	Distance from lead Russian ship
1-2	3 hexes
3-5	5 hexes
6-10	7 hexes

Roll	Initial facing of Goeben*
1-3	4:00 o'clock
4-7	6:00 o'clock
8-10	8:00 o'clock

*In relation to the Russian ships' facing.

Once all ships are placed in their initial positions, the game begins with a visibility roll (see below), and plotting for the first game turn.

16.7   **Special Conditions**. As the action at Cape Sarych occurs in very low visibility conditions, some special rules apply, which supercede the normal spotting rules (see p. 37). The current visibility will be rolled for at the beginning of each turn. The indicated range shown below will be the maximum visibility for the current turn. No gunfire or torpedo attacks may exceed the visibility range.

Roll	Visibility
1-2	6,000 yds (3 hexes)
3-5	10,000 yds (5 hexes)
6-10	14,000 yds (7 hexes)

16.8   **Historical Notes**. The engagement between the *Goeben* and the five Russian pre-dreadnoughts proved to be inconclusive. No ships were lost by either side. Once Admiral Souchin realized that the Russian fleet was going to be able to hold its own, he decided that discretion was the better part of valor and disengaged.

Because of damage sustained by the *Evstafi* during the opening salvos, the correct firing solution was never relayed to the gunnery master ship, or other Russian ships in the squadron. Therefore, most of the firing from the other four ships was largely ineffectual. So the engagement was largely a single-ship duel between the *Goeben* and the pre-dreadnought *Evstafi*.

17   CORONEL

November 1, 1914

17.1   **Introduction**. Operating out of the Pacific, Germany's East Asiatic Squadron, under the command of Count Maximilian von Spee, was sailing east while trying to evade British and Japanese forces. East of the Caroline Islands, nearing the coast of South America, the German squadron was intercepted by a British squadron commanded by Admiral Sir Christopher Craddock. Except for the light cruiser *Glasgow*, the British squadron was ageing and outdated.

What followed was an encounter in which the British suffered their first naval defeat in over a century. Admiral Craddock was lost, along with *Good Hope* and *Monmouth*.

17.2   **British Ships**

Ship	Class and/or Type
HMS *Good Hope*	*Drake*-class first class armored cruiser
HMS *Monmouth*	*Monmouth*-class first class armored cruiser
HMS *Glasgow*	*Bristol*-class light cruiser
HMS *Otranto*	armed merchant cruiser

17.3   **German Ships**

Ship	Class and/or Type
Scharnhorst	*Scharnhorst*-class heavy cruiser
Gneisenau	*Scharnhorst*-class heavy cruiser
Dresden	*Dresden*-class light cruiser
Nürnberg	*Königsberg*-class light cruiser
Leipzig	*Bremen*-class light cruiser

17.4   **Victory Points**. Standard victory points are awarded for this scenario. The exception is HMS *Otranto*, which only awards half victory points (6) if sunk by the German player.

17.5   **Victory Conditions**
- *British Decisive Victory*: A 2:1 or greater ratio of victory points.
- *British Marginal Victory*: A 1:1 or greater ratio of victory points.
- *British Draw*: A 1:2 or greater ratio of victory points.
- *British Loss*: Less than a 1:2 ratio of victory points.
- *German Decisive Victory*: A 3:1 or greater ratio of victory points.

- *German Marginal Victory*: A 2:1 or greater ratio of victory points.
- *German Draw*: A 1:1 or greater ratio of victory points.
- *German Loss*: Less than a 1:1 ratio of victory points.

17.6 Deployment. Meeting engagement.

17.7 Special Conditions. The engagement at Coronel began at dusk, and continued into the darkness of late evening. To simulate this, the first six turns of the battle should be played normally. Beginning with the seventh turn, the sun has set, and the optional night rules should be used (see p. XX). This limits visibility to 12,000 yards, and firing ships incur the night firing modifier.

17.8 Historical Notes. As stated in the introduction, the Battle of Coronel resulted in the first British naval loss in more than a century. There were several reasons for this. The British force was generally considered to be inferior to the German force. While the overall tonnage in ships was comparable, the British ships were older. Both *Good Hope* and *Canopus* were just out of reserve, and had extremely green crews. The crew of the *Canopus* were reserves, having never even fired her guns. And because of engine problems, she held back, and didn't figure in the battle itself. *Monmouth* had an even less experienced crew than *Good Hope*. To top things off, *Otranto* was a converted passenger liner, with old 4.7" guns, and no armor.

      Another factor was the manner in which the two forces closed during the battle. The British had the setting sun to their backs, which initially proved to be an advantage, as the German gun crews were looking into the sun. As the sun set, however, this advantage turned into a hindrance. The British ships were silhouetted by the setting sun, while the German ships progressively got harder and harder to see. And once the sun had set, the German crews were able to target the fires on the British ships, while British gun crews could only target the German gun flashes.

      At about 9:30 PM the German cruisers opened fire on the British ships from a range of approximately 11,400 yards. The final result was that the *Good Hope* and *Monmouth* were lost, and the *Glasgow*, *Otranto*, and *Canopus* made for the Falkland Islands.

17.9 Hypothetical Scenario 1. Historically, *Canopus* was held in reserve by Admiral Craddock and didn't engage the Germans. While it may be historically accurate to do this, it will probably make for an extremely short game. It is recommended to allow the British player the use of *Canopus*, as it will provide a more even engagement. If using *Canopus*, one of two speed tracks can be used. Historically, *Canopus* was suffering from engine problems and could only maintain approximately 10 knots. To maintain historical accuracy, use the speed numbers shown below. When doing this, allow *Canopus* to form a squadron by itself. If the regular speeds are used, *Canopus* should be placed in a squadron with the other ships, per the normal squadron rules.

Ship	Class and/or Type
HMS *Canopus*	*Canopus*-class first class battleship

Optional Damage Track (*Canopus*)				
Hull Hits	[OOOO]	[OOO]	[OOO]	[OOO]
Speed	2	2	1	1

17.9.1 *Victory Conditions*
- *British Decisive Victory*: A 2:1 or greater ratio of victory points.
- *British Marginal Victory*: A 1:1 or greater ratio of victory points.
- *British Draw*: A 2:3 or greater ratio of victory points.
- *British Loss*: Less than a 2:3 ratio of victory points.
- *German Decisive Victory*: A 2:1 or greater ratio of victory points.
- *German Marginal Victory*: A 1:1 or greater ratio of victory points.
- *German Draw*: A 2:3 or greater ratio of victory points.
- *German Loss*: Less than a 2:3 ratio of victory points.

17.10 Hypothetical Scenario 2. Admiral Craddock was promised the armored cruiser HMS *Defence* as a reinforcement to his squadron. *Defence* was never delivered, however, and the British Admiralty assured Admiral Craddock his existing squadron could handle the German force. Thus, Admiral Craddock engaged the Germans shorthanded, resulting in a British loss.

As a variant, add both HMS *Defence* and HMS *Canopus* (above) to the British force list.

Ship	Class and/or Type
HMS *Defence*	*Minotaur*-class first class armored cruiser

17.10.1 *Victory Conditions*

- *British Decisive Victory*: A 3:1 or greater ratio of victory points.
- *British Marginal Victory*: A 2:1 or greater ratio of victory points.
- *British Draw*: A 1:1 or greater ratio of victory points.
- *British Loss*: Less than a 1:1 ratio of victory points.
- *German Decisive Victory*: A 2:1 or greater ratio of victory points.
- *German Marginal Victory*: A 1:1 or greater ratio of victory points.
- *German Draw*: A 1:2 or greater ratio of victory points.
- *German Loss*: Less than a 1:2 ratio of victory points.

17.11   Crew Quality Option. The various crew qualities also played a role in determining the outcome at Coronel. This effect can be added by using the crew quality optional rule (see p. 36). This option should only be used, however, if the British player is using *Canopus* and *Defence*.

- British Crew Quality: The crew quality of *Good Hope, Monmouth, Canopus,* and *Otranto* is fair. All others are average.
- German Crew Quality: The crew quality of the *Scharnhorst, Gneisenau, Dresden, Nürnberg* and *Leipzig* is great. All others are average.

18   DOGGER BANK

January 24, 1915

18.1   Introduction. By the end of 1915, German submarine warfare was in full swing. The surface fleet was having less success, having been effectively bottled up in port by British Admiral Beatty's success at Heligoland Bight.

German Admiral Franz von Hipper decided to rectify the situation by launching a raid against three British coastal towns. On December 16, the raid took place, killing 18 civilians at Scarborough, and causing further damage at Whitby and Hartlepool.

Confident from the success of this raid, Hipper decided to attempt a second the following month. The British, having successfully intercepted and decoded a German radio transmission on January 23, knew of Hipper's proposed sortie, and were able to intercept the German fleet at Dogger Bank, midway between Germany and Britain.

At about 7:15 AM on the morning of January 24, the German light cruiser *Kolberg* sighted the British light cruiser *Aurora*, and began exchanging gunfire. Thinking the British had only light cruisers in the area, Admiral Hipper turned his heavy ships toward the firing, with the intent of engaging the British. As the German ships turned, smoke from the British battlecruisers was sighted. Hipper, not wanting to engage the heavier British ships, decided to head for home, and set a course to the southwest. The engagement turned into a stern chase, with the British in hot pursuit of the German force.

At one point, Vice-Admiral Beatty ordered the British light cruisers out of the way, as their stack smoke was interfering with the gunfire from the battlecruisers.

Finally, at close to 9:00 AM, the *Lion* had closed to within 20,000 yards of the *Blücher*, and began firing.

18.2 British Ships

Ship	Class and/or Type
HMS *Tiger*	battlecruiser
HMS *Lion*	*Lion*-class battlecruiser
HMS *Princess Royal*	*Lion*-class battlecruiser
HMS *New Zealand*	*Indefatigable*-class battlecruiser
HMS *Indomitable*	*Invincible*-class battlecruiser
HMS *Birmingham*	*Birmingham*-class light cruiser
HMS *Lowestoft*	*Birmingham*-class light cruiser
HMS *Nottingham*	*Birmingham*-class light cruiser
HMS *Southampton*	*Chatham*-class light cruiser
HMS *Arethusa*	*Arethusa*-class light cruiser
HMS *Undaunted*	*Arethusa*-class light cruiser
HMS *Aurora*	*Arethusa*-class light cruiser

18.3 German Ships

Ship	Class and/or Type
Derfflinger	*Derfflinger*-class battlecruiser
Blücher	armored cruiser
Seydlitz	battlecruiser
Moltke	*Moltke*-class battlecruiser
Graudenz	*Graudenz*-class light cruiser
Rostock	*Karlsruhe*-class light cruiser
Kolberg	*Kolberg*-class light cruiser
Stralsund	*Magdeburg*-class light cruiser

18.4 **Victory Points**. Standard victory points are awarded for this scenario. Additional victory points can be earned by the German player by having ships escape from the British force.

18.5 Victory Conditions

- *British Decisive Victory*: A 3:1 or greater ratio of victory points.
- *British Marginal Victory*: A 2:1 or greater ratio of victory points.
- *British Draw*: A 2:3 or greater ratio of victory points.
- *British Loss*: Less than a 2:3 ratio of victory points.
- *German Decisive Victory*: A 3:1 or greater ratio of victory points.
- *German Marginal Victory*: A 2:1 or greater ratio of victory points.
- *German Draw*: A 2:3 or greater ratio of victory points.
- *German Loss*: Less than a 2:3 ratio of victory points.

18.5.1 *Victory Condition Modifiers*. Once the initial level of victory is calculated for each side, the following conditions should be applied:

1. Greater number of opposing capital ships sunk: One additional level of victory.
2. Equal number of opposing capital ships sunk: No additional effect.
3. Lesser number of opposing capital ships sunk: One less level of victory.

The capital ships for each side are defined as follows:
- British: *Indomitable*, *Lion*, *New Zealand*, *Princess Royal*, *Tiger*
- German: *Blücher*, *Derfflinger*, *Moltke*, *Seydlitz*

18.6 **Deployment**. Stern chase, with the Germans being deployed on the board as the pursued force. Additionally, during the pursuit at Dogger Bank, both the *Lion* and *Princess Royal* were able to maintain a speed of 29 knots. For historical accuracy, use the following speed numbers for the *Lion* and *Princess Royal*:

Optional Damage Track (*Lion* and *Princess Royal*)			
Hull Hits	[OOOOOO]	[OOOOOO]	[OOOOOO]	[OOOOO]
Speed	6	4	3	2

18.7 **Special Conditions**. Admiral Beatty called off the pursuit when British lookouts incorrectly reported sighting of a German periscope, indicating the presence of a German submarine. To simulate this possibility, beginning with turn eight, roll a die during each End Phase. On a 6+, the game continues normally. Otherwise, the game ends immediately.

18.8 **Historical Notes**. The British won a victory at Dogger Bank, and were publicly pleased. Privately, however, they were disappointed that the Germans had lost only the *Blücher*. There were several reasons for this.

During the battle, when the *Blücher* sustained enough damage to be forced to drop out of the German battle line, Beatty ordered the *Indomitable* to intercept. Because of a mix-up in signals due to battle damage and inexperience, a large part of the British force also turned to pursue

the doomed *Blücher*, and let the rest of the German force escape.

The captain of the *Tiger*, Captain Pelly, was also criticized for the low quality of his ship's gunnery, and also for not pursuing the German force once the flagship *Lion* dropped out of the British line.

On the German side, the Kaiser was furious with the loss, and ordered fewer risks to be taken in the future. Hipper was also criticized for taking the slower *Blücher* as part of his force. This was probably a little unfair, though, as he was already limited because of the slower speeds of his torpedo boats.

18.9 **Hypothetical Scenario**. Dogger Bank involves a large number of ships, and this can slow down play. A very enjoyable scenario can be played solely between the larger combatants on each side. In this scenario, assume only the battlecruisers from each side have engaged. Allow each side to use the following ships:

- British: *Tiger*, *Lion*, *Princess Royal*, *New Zealand*, *Indomitable*
- Germans: *Derfflinger*, *Blücher*, *Seydlitz*, *Moltke*

18.10 **Historical Variant**. In addition to the cruisers at Dogger Bank, there were a large number of destroyers involved on both sides. The following lists include the destroyers which were involved. Charts for the flotillas as they appeared at Dogger Bank have been included for players wishing to use the optional flotilla rules.

18.10.1 *British Destroyers*

Ship	Class and/or Type
HMS *Laforey* (x12)	*Laforey*-class destroyer
HMS *Meteor* (x7)	"M"-class destroyer
HMS *Acheron* (x14)	*Acheron*-class destroyer

18.10.2 *British Flotillas*. The following flotilla charts have been added for those players wanting to use the optional flotilla rules (see p. 37).

Harwich Force									
HMS *Arethusa* (Flag) (*Arethusa*-class light cruiser)									
7x "M" class destroyer									
Hull	**Speed**	**Belt**	**Ends**	**Deck**	**Size**	**Mod.**	**C&C**	**C.R.**	**A.A.R.**
19	6	5/5	5/5	5	V.Small	-2	9	3	15
Armament		**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**			
UK 6"/45 Mk.xII		+1	3/6/9	3/1/1*	x2	[OO]			
UK 4"/45 Mk.V		+3	2/4/7	1/1/0*	x1	[OOOOO OOOOO OOOOO OOOOO] [OOOOO OO]			
Light Guns		+3	1/2/3	1/0/0*	x1	[OOOOO OOO]			
UK 21" Torpedo		-	5	-	x5	[OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO]			
Damage Track									
Hull Hits		[OOOOO]		[OOOOO]		[OOOOO]		[OOOO]	
Speed		6		5		4		2	
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
6",4", Torp	4"(x2), Torp	4"(x2), Torp	4"(x2), Torp	4"(x2), Torp	4",LG, Torp	4",LG, Torp	4",LG, Torp	4",LG, Torp	

3rd Destroyer Flotilla

HMS *Undaunted* (Flag) (*Arethusa*-class light cruiser)

12x *Laforey* class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
29	6	5/5	5/5	5	V.Small	-2	14	3	13

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 6"/45 Mk.xII	+1	3/6/9	3/1/1*	x2	[OO]			
UK 4"/45 Mk.V	+3	2/4/7	1/1/0*	x1	[OOOOO OOOOO OOOOO OOOOO] [OOOOO OOOOO OOOOO OOOOO OO]			
Light Guns	+3	1/2/3	1/0/0*	x1	[O]			
UK 21" Torpedo	-	5	-	x5	[OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO][OO][OO]			

Damage Track				
Hull Hits	[OOOOO OOO]	[OOOOO OO]	[OOOOO OO]	[OOOOO OO]
Speed	6	5	4	2

Hit Location								
1	2	3	4	5	6	7	8	9
6",4", Torp	4"(x2), Torp	4"(x2), Torp	4"(x2), Torp	4"(x2), Torp	4",Torp	4",Torp	4",Torp	4",Torp

1st Destroyer Flotilla

HMS *Aurora* (Flag) (*Arethusa*-class light cruiser)

14x *Acheron* class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
19	6	5/5	5/5	5	V.Small	-2	16	3	29

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 6"/45 Mk.xII	+1	3/6/9	3/1/1*	x2	[OO]			
UK 4"/45 Mk.V	+3	2/4/7	1/1/0*	x1	[OOOOO O]			
UK 4"/40 Mk.VIII	+2	1/3/4	1/1/0	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOO]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOO]			
UK 21" Torpedo	-	5	-	x5	[OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO][OO][OO][OO][OO][OO][OO] [OO][OO]			

Damage Track				
Hull Hits	[OOOOO]	[OOOOO]	[OOOOO]	[OOOO]
Speed	6	5	4	2

Hit Location								
1	2	3	4	5	6	7	8	9
6", 4"(40), LG(x2), Torp	4"(45), 4"(40), LG(x2), Torp	4"(45), 4"(40), LG(x2), Torp	4"(45), 4"(40), LG,Torp	4"(40x2), LG,Torp	4"(40x2), LG,Torp	4"(40x2), LG,Torp	4"(40x2), LG,Torp	4"(40), LG(x2), Torp

18.10.3 *German Destroyers*

Ship	Class and/or Type
G7 (x5)	*G7*-class destroyer
S31 (x3)	*S31*-class destroyer
S176 (x1)	*S176*-class destroyer
V1 (x4)	*V1*-class destroyer
V25 (x2)	*V25*-class destroyer
V180 (x3)	*V180*-class destroyer

18.10.4 *German Flotillas*. The following flotilla charts have been added for those players wanting to use the optional flotilla rules (see p. 37).

V Torpedo Boat Flotilla
1x *G7*-class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	6	5/5	5/5	5	V.Small	-2	1	3	1

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
DEU 20" Torpedo	-	5	-	x5	[OO][OO][O][O]				

Damage Track									
Hull Hits	[O]		-		-		-		
Speed	6		-		-		-		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
-	-	-	-	-	-	-	-	-	

9 Torpedo Boat Half-Flotilla
3x *V1*-class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	6	5/5	5/5	5	V.Small	-2	3	3	3

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOO]				
DEU 20" Torpedo	-	5	-	x5	[OO][O][O][OO][O][O][OO][O][O]				

Damage Track									
Hull Hits	[O]		[O]		[O]		-		
Speed	6		5		5		-		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)

10 Torpedo Boat Half-Flotilla
4x *G7*-class destroyer, 1x *V1*-class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	6	5/5	5/5	5	V.Small	-2	5	3	5

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO]				
DEU 20" Torpedo	-	5	-	x5	[OO][O][O][OO][O][O][OO][O][O] [OO][O][O][OO][O][O]				

Damage Track									
Hull Hits		[OO]		[O]		[O]		[O]	
Speed		6		5		5		4	

Hit Location								
1	2	3	4	5	6	7	8	9
LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)	LG(x3), Torp2, T1(x2)

VIII Torpedo Boat Flotilla
1x *176*-class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	6	5/5	5/5	5	V.Small	-2	1	3	1

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
DEU 20" Torpedo	-	5	-	x5	[O][O][O]				

Damage Track									
Hull Hits		[O]		-		-		-	
Speed		6		-		-		-	

Hit Location								
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

---

15 Torpedo Boat Half-Flotilla
3 x *V180* class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	6	5/5	5/5	5	V.Small	-2	3	3	3

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOO]				
DEU 18" Torpedo	-	2	-	x4	[O][O][O][O][O][O][O][O][O]				

Damage Track									
Hull Hits		[O]		[O]		[O]		-	
Speed		6		5		5		-	

Hit Location								
1	2	3	4	5	6	7	8	9
LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)	LG(x3), Torp(x3)

18 Torpedo Boat Half-Flotilla
2 x *V25* class destroyer, 3 x *S31* class destroyer

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	7	5/5	5/5	5	V.Small	-2	5	3	6

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO]			
DEU 20" Torpedo	-	5	-	x5	[OO][OO][O][O][OO][OO][O][O] [OO][OO][O][O][OO][OO][O][O] [OO][OO][O][O]			

Damage Track								
Hull Hits	[OO]		[O]		[O]		[O]	
Speed	7		6		6		5	

Hit Location								
1	2	3	4	5	6	7	8	9
LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)	LG(x5), T2(x2), T1(x2)

19   FALKLANDS

December 8, 1914

19.1   **Introduction**. After his decisive victory over British forces at Coronel, Count Maximilian von Spee refueled his ships and pondered his next course of action. Eventually deciding to head for home, his force passed Cape Hope by December 1, and on the following day succeeded in capturing an enemy coal ship.

Resting for three days at Pictou Island, Spee decided to raid the Falkland Islands on his way home. His indecision in the Pacific, and the decision to raid the Falklands, were to end up costing Spee and his force dearly.

As Spee was heading toward the Falklands, the British were busy assembling another force to exact some retribution for Coronel. The battlecruisers *Invincible* and *Inflexible*, commanded by Admiral Sturdee, departed England for the Falklands on November 11. By the time Admiral Sturdee arrived at Port Stanley on December 7, the British warship force consisted of *Invincible* and *Inflexible*, the armored cruisers *Kent*, *Carnarvon*, and *Cornwall*, the light cruisers *Bristol* and *Glasgow*, the pre-dreadnought *Canopus*, and the armed merchant cruiser *Macedonia*.

On the morning of December 8, Spee detached the *Gneisenau* and *Nürnberg* to attack the wireless station and port facilities at Port Stanley. At approximately 8:30 AM they sighted smoke from *Macedonia* as she returned from morning patrol, and at 9:00 AM they sighted the tripod masts of the other capital ships. The German ships knew that *Canopus* was in the area, and hoped that the rest of the masts belonged to other pre-dreadnoughts, which they could outrun.

At 9:45, *Bristol* managed to leave the harbor, followed fifteen minutes later by *Invincible*, *Inflexible*, *Kent*, *Carnarvon*, and *Cornwall*. While *Bristol* and *Macedonia* remained behind, the rest of the British ships took off in pursuit of the two German cruisers. The Germans had a fifteen- to twenty-mile lead, but with most of the day left, and Germans in dire need of a refit, it was only a matter of hours before the British would be within striking distance. Spee knew he couldn't outrun the battlecruisers, and set a course to the southeast in hopes of finding bad weather.

At first the British group stayed together. But as the battlecruisers were being slowed down by the rest of the force, they soon pulled ahead on their own. At approximately 12:45 PM, the battlecruisers finally opened fire at 16,500 yards. Spee, realizing he was caught, turned the *Gneisenau* and *Scharnhorst* to face the battlecruisers, and ordered the light cruisers to try and escape.

19.2 British Ships

Ship	Class and/or Type
HMS *Invincible*	*Invincible*-class battlecruiser
HMS *Inflexible*	*Invincible*-class battlecruiser
HMS *Carnarvon*	*Devonshire*-class first-class armored cruiser
HMS *Cornwall*	*Monmouth*-class first-class armored cruiser
HMS *Kent*	*Monmouth*-class first-class armored cruiser
HMS *Glasgow*	*Bristol*-class light cruiser

19.3 German Ships

Ship	Class and/or Type
Scharnhorst	*Scharnhorst*-class heavy cruiser
Gneisenau	*Scharnhorst*-class heavy cruiser
Dresden	*Dresden*-class light cruiser
Nürnberg	*Königsberg*-class light cruiser
Leipzig	*Bremen*-class light cruiser

19.4   Victory Points. Standard victory points are awarded for this scenario. Additional victory points can be earned by the German player by having ships escape from the British force.

19.5   Victory Conditions

- *British Decisive Victory*: A 3:1 or greater ratio of victory points.
- *British Marginal Victory*: A 2:1 or greater ratio of victory points.
- *British Draw*: A 1:1 or greater ratio of victory points.
- *British Loss*: Less than a 1:1 ratio of victory points.
- *German Decisive Victory*: A 2:1 or greater ratio of victory points.
- *German Marginal Victory*: A 1:1 or greater ratio of victory points.
- *German Draw*: A 2:3 or greater ratio of victory points.
- *German Loss*: Less than a 2:3 ratio of victory points.

19.6   Deployment. Stern chase, with the Germans being deployed on the board as the pursued force.

NoTE: As the German squadron has been at sea for a very long time, the maximum speed of each ship is reduced to four.

19.7   Historical Notes. At the Falklands, the British claimed their revenge from the Germans for Coronel. The German cruiser squadron probably would have had a tough time handling the battlecruisers *Invincible* and *Inflexible* by themselves, let alone the other cruisers Admiral Sturdee had in his squadron.

While *Invincible* and *Inflexible* kept the *Scharnhorst* and *Gneisenau* busy, the rest of the British squadron went after the German light cruisers. As the lighter guns on the German light cruisers had a hard time penetrating the armor of the heavier British cruisers, they ended up being no match for the British.

The final result was that the German Asiatic Squadron was decimated, with the *Scharnhorst*, *Gneisenau*, *Nürnberg*, and *Leipzig* being sunk. The *Dresden* managed to escape, but a few months later was trapped at Mas a Tierra and scuttled.

The British meanwhile suffered no ship losses, and very few casualties.

19.8   Hypothetical Scenario 1. Admiral Spee's first, and most costly mistake, was delaying his squadron's return home. This resulted in having to face the British battlecruisers at the Falklands.

As a variant, assume that Admiral Spee headed for home soon after Coronel. This would mean that the German squadron would arrive off of the Falklands before the arrival of the British battlecruisers *Invincible* and *Inflexible*.

Use the above listed forces for the British and Germans, but without *Invincible* and *Inflexible*.

19.8.1   *Victory Conditions*

- *British Decisive Victory*: A 2:1 or greater ratio of victory points.
- *British Marginal Victory*: A 1:1 or greater ratio of victory points.
- *British Draw*: A 2:3 or greater ratio of victory points.
- *British Loss*: Less than a 2:3 ratio of victory points.
- *German Decisive Victory*: A 3:1 or greater ratio of victory points.
- *German Marginal Victory*: A 2:1 or greater ratio of victory points.
- *German Draw*: A 1:1 or greater ratio of victory points.
- *German Loss*: Less than a 1:1 ratio of victory points.

19.8.2   *Deployment*. Meeting engagement.

19.9   **Hypothetical Scenario 2**. During the battle, the British ships *Bristol* and *Macedonia* didn't engage the main German cruiser squadron, instead going after the two German colliers, sinking them both. In this scenario, again assume that *Invincible* and *Inflexible* have yet to arrive in the Falklands. But allow the British player the use of *Bristol* and *Macedonia*.

Ship	Class and/or Type
HMS *Bristol*	*Bristol*-class light cruiser
HMS *Macedonia*	armed merchant cruiser

19.9.1   *Victory Points*. Standard victory points are awarded for this hypothetical scenario.

19.9.2   *Victory Conditions*
- *British Decisive Victory*: A 2:1 or greater ratio of victory points.
- *British Marginal Victory*: A 1:1 or greater ratio of victory points.
- *British Draw*: A 2:3 or greater ratio of victory points.
- *British Loss*: Less than a 2:3 ratio of victory points.
- *German Decisive Victory*: A 2:1 or greater ratio of victory points.
- *German Marginal Victory*: A 1:1 or greater ratio of victory points.
- *German Draw*: A 2:3 or greater ratio of victory points.
- *German Loss*: Less than a 2:3 ratio of victory points.

19.10   **Crew Quality Option**. The various crew qualities (see p. 36) can be added to even up (somewhat) the engagement.

- British Crew Quality: The crew quality of *Macedonia* is poor. All others are average.
- German Crew Quality: The crew quality of the *Scharnhorst, Gneisenau, Dresden, Nürnberg* and *Leipzig* is great. All others are average.

20	RIVER PLATE

December 13, 1939

20.1   **Introduction**. Operating in the Atlantic Ocean as a commerce raider, the *Graf Spee,* under the command of Hans Langsdorf, was extremely successful at carrying out her mission. The British, aware of her mounting success, had a substantial number of ships looking for her, including Force 'G', under the command of Commodore Henry Harwood. Consisting of *Exeter*, *Cumberland*, *Achilles* and *Ajax*, Harwood's force began patrolling southern Atlantic waters.

Realizing that Langsdorf had two options open to him, Harwood decided that the best course of action for him would be to cover the course ending at the River Plate estuary. Harwood ordered *Exeter*, *Achilles*, and *Ajax* to meet 150 miles east of the River Plate on December 12. The ships would begin patrolling toward the River Plate the next day.

Early on the morning of December 13, lookouts on *Exeter* sighted smoke, and the engagement between the four ships began.

20.2   **British Ships**

Ship	Class and/or Type
HMS *Exeter*	cruiser
HMS *Achilles*	*Leander*-class cruiser
HMS *Ajax*	*Leander*-class cruiser

20.3   **German Ship**

Ship	Class and/or Type
Admiral Graf Spee	*Deutschland*-class cruiser

20.4   **Victory Points**. Standard victory points are awarded for this scenario.

20.5   **Victory Conditions**
- *British Decisive Victory*: Sinking the *Graf Spee*, with the Germans scoring 25 victory points or less. Or scoring more victory points than the Germans.
- *British Marginal Victory*: Sinking the *Graf Spee*, with the Germans scoring 38 victory points or less. Or not losing a ship, with the *Graf Spee* failing to score twice the number of victory points than the British.
- *German Decisive Victory*: Any British ship sunk, with the British scoring 4 victory points or less. Or two or three British

ships sunk, with the British scoring 8 victory points or less.

- *German Marginal Victory*: Scoring more victory points than the British, with the British scoring 6 victory points or less. Or sinking any British ship, with the British scoring 9 victory points or less.
- *British or German Draw*: Any other result.

20.6   **Deployment**. Meeting engagement with special deployment. The *Graf Spee* and *Exeter* enter from opposite sides of the board, per the normal deployment rules. *Ajax* and *Achilles* enter randomly from one of the two sides not entered by the *Graf Spee* or *Exeter*. They are placed on one of the middle five hexes (British player's choice), during the End Phase of the first turn in which gunfire occurs. They are considered to be out of command until entering the command radius of *Exeter*.

20.7   **Historical Notes**. After heavily damaging *Exeter*, and sustaining minor damage, the *Graf Spee* made for the River Plate estuary. The two smaller British ships shadowed the *Graf Spee* at a distance of about 15 miles. At times, *Achilles* got close enough to the *Graf Spee* to fire a few salvoes, but none scored any hits.

At about midnight on December 13, the *Graf Spee* made it to Montevideo Harbor, where she docked.

21	ULSAN

August 14, 1904

21.1   **Introduction**. The news that Admiral Vitgeft had sailed from Port Arthur on August 10 reached Vladivostok the following day. This was a complete surprise to Admiral Iessen, commanding the cruiser squadron, for the last communication from Admiral Vitgeft at Port Arthur indicated that the fleet there would suffer the same fate as the fortress. As such, the cruisers at Vladivostok were totally unprepared to sail and reinforce the sortie sailing from Port Arthur.

Owing to the delay, Admiral Iessen knew there was little hope of assisting Admiral Vitgeft's fleet at the Tsushima Straits. Realizing that if Vitgeft's fleet made it through the straits it would be sailing up the Sea of Japan, Iessen set a course to intercept it there. Forming his ships in line abreast at approximately four mile intervals, Iessen's cruisers steamed southward expecting to see Vitgeft's fleet.

Throughout the night of August 12, and into the next day, Iessen's fleet sailed soutward, encountering no sign of Vitgeft's fleet. Iessen decided not to enter the Tsushima Straits, but instead made a course for the Korean coast.

At this same time, Admiral Kamimura, commanding the Japanese cruiser squadron, was to the east of the Russian squadron, and heading for a point 30 nautical miles northeast of Ulsan, where he hoped to intercept the Russians.

Early on the morning of August 14, Kamimura's long months of hunting were finally rewarded. The Japanese and Russian cruisers were on a converging course, and sighted each other at about the same time. With the Japanese between the Russians and their base, Kamimura knew that the Russians would have to fight.

At 5:20 AM the range had closed to 8,500 yards, and both admirals checked their ranges with opening salvos from their eight-inch guns.

21.2   **Japanese Ships**

Ship	Class and/or Type
Adzuma	armored cruiser
Idzumo	*Idzumo*-class armored cruiser
Iwate	*Idzumo*-class armored cruiser
Tokiwa	*Asama*-class armored cruiser

21.3 Russian Ships

Ship	Class and/or Type
Gromoboi	armored cruiser
Rossia	armored cruiser
Rurik	armored cruiser

21.4 Victory Points. Standard victory points are awarded for this scenario.

Additional victory points can be earned by the Russian player by having ships escape from the Japanese force. Ships which have escaped earn victory points for the Russian player.

21.5 Victory Conditions

- *Japanese Decisive Victory*: A 3:1 or greater ratio of victory points.
- *Japanese Marginal Victory*: A 2:1 or greater ratio of victory points.
- *Japanese Draw*: A 2:3 or greater ratio of victory points.
- *Japanese Loss*: Less than a 2:3 ratio of victory points.
- *Russian Decisive Victory*: A 3:1 or greater ratio of victory points.
- *Russian Marginal Victory*: A 2:1 or greater ratio of victory points.
- *Russian Draw*: A 2:3 or greater ratio of victory points.
- *Russian Loss*: Less than a 2:3 ratio of victory points.

21.6 Deployment. Meeting engagement.

21.7 Historical Notes. The Russian squadron received more than it gave at Ulsan. The *Rurik* was lost, but the *Gromoboi* and *Rossia* eventually made it back to Vladivostok, although both were heavily damaged. For reasons known only to Kamimura, the *Rurik*, being the last ship in the Russian line, was assigned as a target for Kamimura's extra ship. This subjected the *Rurik* to twice the punishment of the other two, stronger Russian ships.

Kamimura could have pressed home his advantage during the engagement to an even greater degree. At one point, Iessen veered away from the Japanese by doing a 16-point turn to starboard, effectively coming about. Instead of completing the same turn, Kamimura came about to port, which actually opened the range between his ships and the Russians.

While Ulsan was another clear victory for the Japanese, it could have been even more decisive.

21.8 Hypothetical Scenario 1. The Russian cruiser *Bogatyr* was part of the Vladivostok squadron, but didn't engage the Japanese off of Ulsan. This scenario allows the use of the *Bogatyr*, which will serve to even the battle somewhat.

Ship	Class and/or Type
Bogatyr	*Bogatyr*-class protected cruiser

21.9 Hypothetical Scenario 2. Along with Kamimura's Second Division, the Japanese had another cruiser division in the area; that being the Fourth Division, consisting of the *Naniwa*, *Niitaka*, *Takachiho*, and *Tsushima*, under the command of Rear Admiral Uriu.

The Russians meanwhile had sustained a severe mauling at the Yellow Sea. This scenario assumes that several of the cruisers present at Yellow Sea made it past the Japanese fleet, and were trying to reach Vladivostok, to join the cruiser squadron stationed there. In addition to the *Bogatyr*, allow the Russians the use of the cruisers *Askold*, *Diana*, and *Novik*.

Additional Japanese Ships:

Ship	Class and/or Type
Naniwa	*Naniwa*-class protected cruiser
Niitaka	*Tsushima*-class protected cruiser
Takachiho	*Naniwa*-class protected cruiser
Tsushima	*Tsushima*-class protected cruiser

Additional Russian Ships:

Ship	Class and/or Type
Askold	protected cruiser
Diana	*Pallada*-class protected cruiser
Novik	protected cruiser

21.9.1 Victory Conditions

- *Japanese Decisive Victory*: A 3:1 or greater ratio of victory points.
- *Japanese Marginal Victory*: A 2:1 or greater ratio of victory points.
- *Japanese Draw*: A 2:3 or greater ratio of victory points.
- *Japanese Loss*: Less than a 2:3 ratio of victory points.

- *Russian Decisive Victory*: A 3:1 or greater ratio of victory points.
- *Russian Marginal Victory*: A 2:1 or greater ratio of victory points.
- *Russian Draw*: A 2:3 or greater ratio of victory points.
- *Russian Loss*: Less than a 2:3 ratio of victory points.

22	YALU RIVER

September 17, 1894

22.1   **Introduction**. On the morning of September 17, 1894, Japanese Admiral Yuko Ito had his fleet steaming north in Korea Bay looking for action. At the head of the bay, Chinese Admiral Ting's fleet was overseeing the landing of some 4500 troops and artillery pieces just inside the mouth of the Yalu River.

At approximately 10:30 that morning, Ting's lookouts were alerted by the thick black smoke from Ito's fleet, signaling its presence. As the landing operation was not yet completed, Admiral Ting pondered his dilemma. He could not leave the transports unprotected, and yet could not leave his fleet at anchor. After some deliberation, Ting gave the order for all ships to weigh anchor and steam out to sea. In 40 minutes' time, the Chinese warships had formed a somewhat ragged line of battle across the entrance to the Yalu.

The opposing fleets came within sight of each other at approximately 11:40 AM, beginning the Battle of the Yalu River.

22.2   **Chinese Ships**

Ship	Class and/or Type
Chao Yung	*Chao Yung*-class protected cruiser
Chen Yuan	*Ting Yuen*-class armored turret ship
Chih Yuan	*Chih Yuan*-class protected cruiser
Ching Yuan	*Chih Yuan*-class protected cruiser
Fu Lung	first class torpedo gunboat
King Yuan	*King Yuan*-class armored cruiser
Kuang Chia	composite dispatch vessel
Kuang P'ing	*Kuang Yi*-class torpedo gunboat
Lai Yuan	*King Yuan*-class armored cruiser
Ping Yuen	armored cruiser
Ting Yuen	*Ting Yuen*-class armored turret ship
Yang Wei	*Chao Yung*-class protected cruiser

22.3 Japanese Ships

Ship	Class and/or Type
Akitsushima	protected cruiser
Chiyoda	armored cruiser
Fuso	central battery ironclad
Hashidate	*Matsushima*-class protected cruiser
Hiei	*Kongo*-class armored corvette
Itsukushima	*Matsushima*-class protected cruiser
Matsushima	*Matsushima*-class protected cruiser
Naniwa	*Naniwa*-class protected cruiser
Takachiho	*Naniwa*-class protected cruiser
Yoshino	protected cruiser

22.4 **Victory Points**. Standard victory points are awarded for this scenario.

22.5 Victory Conditions

- *Chinese Decisive Victory*: Less than two Japanese ships at half damage or less exiting off of the Chinese side, and losses do not exceed a 1:2, or worse, ratio of victory points.
- *Chinese Marginal Victory*: Less than four Japanese ships at half damage or less exiting off of the Chinese side, and losses do not exceed a 1:2, or worse, ratio of victory points.
- *Chinese Draw*: Less than four Japanese ships at half damage or less exiting off of the Chinese side, and losses do not exceed a 1:3, or worse, ratio of victory points.
- *Chinese Loss*: Four or more Japanese ships at half damage exiting the Chinese side, or losses exceeding a 1:3 ratio of victory points.
- *Japanese Decisive Victory*: Exiting at least seven ships at half damage or less off of the Chinese side. Or a 4:1 or greater ratio of victory points.
- *Japanese Marginal Victory*: Exiting at least four ships at half damage or less off of the Chinese side. Or a 3:1 or greater ratio of victory points.
- *Japanese Draw*: Exiting at least two ships at half damage or less off of the Chinese side, and a 2:1 or greater ratio of victory points.
- *Japanese Loss*: Exiting less than two ships at half damage or less off the Chinese side, or less than a 2:1 ratio of victory points.

22.6 **Deployment**. Meeting engagement.

22.7 **Historical Notes**. The Yalu River engagement lasted most of the afternoon, finally subsiding as night fell. The remaining ships of the Chinese fleet made their way back to base at Port Arthur, while the Japanese fleet withdrew to the south.

The Chinese fleet had sustained much more damage than the Japanese fleet, losing the *Chao Yung*, *Chih Yuan*, *King Yuan*, and *Yang Wei*. On the Japanese side, no ships were lost, but the *Yoshino* and *Matsushima* both sustained heavy damage. The surviving Chinese ships were rebuilt over the following few weeks, and although they were reluctant to engage the Japanese, they remained as a threat to Japanese troop movements along the coast.

Observers viewed Yalu River as a victory for the Chinese, even though the Japanese clearly inflicted more damage, because the Chinese did, in fact, prevent Ito and his ships from obstructing the landing of Chinese troops.

22.8 **Hypothetical Scenario**. Owing to Japan's aggressive behavior toward China, and their apparent desire to expand onto the Asian continent, Russia has decided to lend China support. Because of an agreement between China and Russia concerning the base at Port Arthur, several Russian gunboats have been sent to aid China's unloading of troops at Yalu. The following boats should be added to the Chinese fleet, and should be used as a separate squadron.

Ship	Class and/or Type
Grozyashchi	*Grozyashchi*-class armored gun vessel
Gremyashchi	*Grozyashchi*-class armored gun vessel
Otvajni	*Grozyashchi*-class armored gun vessel
Korietz	*Korietz*-class gun vessel
Mandjur	*Korietz*-class gun vessel
Sivuch	*Sivuch*-class gun vessel

22.9 **Crew Quality Option**. Chinese crews were generally inferior in quality to their Japanese counterparts. Therefore, the Japanese crews can be played as average in quality, while the Chinese crews can be played as poor (see p. 36).

23   YELLOW SEA

August 10, 1904

23.1   **Introduction**. Throughout late July and early August, 1904, Japanese troops tightened their stranglehold on the Russian base of Port Arthur. Viceroy Alexieff, commander of Port Arthur, was becoming increasingly frustrated by the inactivity of the Russian fleet stationed there, commanded by Admiral Vitgeft. While Vitgeft felt that staying at anchor and providing gunfire for the land battle was the more prudent course of action, Alexieff was convinced that a sortie to the port of Vladivostock (adding the naval forces there to the existing Port Arthur fleet) was a far better course of action.

It finally took an appeal by Alexieff directly to the authority of Tsar Nicholas himself. Faced with an Imperial edict, Vitgeft was forced to action.

On August 10, the Russian fleet began steaming out of Port Arthur. Awaiting it was an imposing Japanese fleet commanded by Admiral Togo. As Togo had to wait for the Russian fleet to clear the defensive minefields of Port Arthur, his first moves were to put his ships between the Russian fleet and Port Arthur. This would prevent the Russians from returning to port, and force a major fleet action. However, when it became apparent that the Russians had no intention of returning, instead making for Vladivostock, Togo found his fleet so far behind the Russians that he had to spend several hours catching back up to the battleships at the head of the Russian battle line.

Finally, at about 5:45 PM, the Japanese were able to open fire on the Russian battleships and the battle began in earnest.

23.2   Japanese Ships

Ship	Class and/or Type
Asahi	battleship
Asama	*Asama*-class armored cruiser
Chin Yen	*Ting Yuen*-class armored turret ship
Chitose	*Chitose*-class protected cruiser
Fuji	*Fuji-class* battleship
Hashidate	*Matsushima*-class protected cruiser
Itsukushima	*Matsushima*-class protected cruiser
Kasagi	*Chitose*-class protected cruiser
Kasuga	*Kasuga*-class armored cruiser
Matsushima	*Matsushima*-class protected cruiser
Mikasa	battleship
Nisshin	*Kasuga*-class armored cruiser
Shikishima	*Shikishima*-class battleship
Takasago	protected cruiser
Yakumo	armored cruiser

23.3   Russian Ships

Ship	Class and/or Type
Askold	protected cruiser
Diana	*Pallada*-class protected cruiser
Novik	protected cruiser
Pallada	*Pallada*-class protected cruiser
Peresviet	*Peresviet*-class battleship
Pobieda	*Peresviet*-class battleship
Poltava	*Petropavlovsk*-class battleship
Retvizan	battleship
Sevastopol	*Petropavlovsk*-class battleship
Tsessarevitch	battleship

23.4   **Victory Points**. Standard victory points are awarded for this scenario. Additional victory points can be earned by the Russian player by having ships escape from the Japanese force.

23.5   **Victory Conditions**
- *Japanese Decisive Victory*: A 3:1 or greater ratio of victory points.
- *Japanese Marginal Victory*: A 2:1 or greater ratio of victory points.
- *Japanese Draw*: A 2:3 or greater ratio of victory points.
- *Japanese Loss*: Less than a 2:3 ratio of victory points.
- *Russian Decisive Victory*: A 3:1 or greater ratio of victory points.

- *Russian Marginal Victory*: A 2:1 or greater ratio of victory points.
- *Russian Draw*: A 2:3 or greater ratio of victory points.
- *Russian Loss*: Less than a 2:3 ratio of victory points.

23.6   **Deployment**. Meeting engagement.

23.7   **Historical Notes**. Except for Tsushima, Yellow Sea was the most decisive naval engagement of the Russo-Japanese War. It could be argued that the final outcome really came down to two shell hits that struck the bridge of the *Tseseravitch*, Vitgeft's flagship. These two hits, which struck almost simultaneously, killed Vitgeft, and killed or incapacitated every other Russian officer on the bridge and conning tower.

In addition, the *Tseseravitch's* wheel was wedged into a hard port turn. Before this turn could be corrected, the *Tseseravitch* had turned more than 180 degrees, and was doubling back on the Russian battle line, the next few ships following this lead. By the time an officer had been found to take command, the Russian squadron was in a total state of disorder. The Russians had no choice but to abandon any hope of reaching Vladivostok, and retreated back to Port Arthur.

Five of the Russian battleships managed to return, while the *Tseseravitch* made it to the German port of Tsing-Tau. She was interned there, and never fought again during the war.

23.8   **Hypothetical Scenario**. The Russians were outnumbered at Yellow Sea, and even without the critical hits on the *Tseseravitch* would have found it difficult breaking through the Japanese battle line. Assuming better coordination, Iessen's cruisers may have been available to reinforce Vitgeft's fleet.

This variant adds in the cruisers from Vladivostok.

Ship	Class and/or Type
Gromoboi	armored cruiser
Rossia	armored cruiser
Rurik	armored cruiser
Bogatyr	*Bogatyr*-class protected cruiser

BRITISH SHIPS

HMS *Acheron*
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	6	5/5	5/5	5	V.Small	-2	1	3	2

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 4"/45 Mk.VIII	+2	1/3/4	1/1/0*	x1	ABCD[O] CDEF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OO]				
UK 21" Torpedo	-	5	-	x5	[OO]				

Damage Track									
Hull Hits	[O]		-		-		-		
Speed	6		-		-		-		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
-	-	-	-	-	-	-	-	-	

HMS *Arethusa, Aurora, Undaunted*
(*Arethusa*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	6	7/7	6/6	6	Small	-1	2	4	1

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 6"/45 Mk.xII	+1	3/6/9	3/1/1*	x2	ABCD[O] CDEF[O]				
UK 4"/45 Mk.V	+3	2/4/7	1/1/0*	x1	C[OOO] D[OOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[O]				
UK 21" Torpedo	-	5	-	x5	[OO][OO][OO][OO]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	6		5		4		2		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
6", 4"	6", 4"	6", 4"	6", 4"	4"(x2)	4"(x2)	4", LG	4", LG	4"	

HMS *Birmingham, Lowestoft, Nottingham*
(*Birmingham*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	5	6/6	6/6	6	Small	-1	2	4	4

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 6"/45 Mk.xII	+1	3/6/9	3/1/1*	x2	ABC[O] ABD[O] C[OOO] CDEF[O] D[OOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
UK 21" Torpedo	-	5	-	x5	[O][O]				

Damage Track									
Hull Hits	[OO]		[OO]		[O]		[O]		
Speed	5		4		3		2		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
6"(x2), LG	6"(x2)	6"(x2)	6"(x2)	6"(x2)	6", LG	6", LG	6", LG	6", LG	

HMS *Glasgow*
(*Bristol*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	5	5/6	5/6	6	Small	-1	2	4	4

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 6″/50 Mk.xIII	+1	2/4/5	3/1/1	x2	ABCD[O] CDEF[O]			
UK 4″/50 Mk.VIII	+2	2/3/5	2/1/1	x1	AC[O] BD[O] C[OOO]			
					CE[O] D[OOO] DF[O]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]			
UK 18″ Torpedo	-	3	-	x4	[O][O]			

Damage Track								
Hull Hits	[OO]		[OO]		[O]		[O]	
Speed	5		4		3		2	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
6″, 4″, LG	6″, 4″, LG	6″, 4″, LG	4″(x2), LG	4″(x2), LG	4″(x2)	4″(x2)	4″(x2)	4″(x2)

HMS *Canopus*
(first-class battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	4	9/8	7/7	6	Medium	+0	3	5	16

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 12″/35 Mk.VIII	+0	2/4/6	7/3/2	x1	ABCD2[O] CDEF2[O]			
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	AC[OO] BD[OO] C[OO] CE[OO] D[OO]			
					DF[OO]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO]			
UK 18″ Torpedo	-	2	-	x3	[O][O][O][O]			

Damage Track								
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]	
Speed	4		3		2		2	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
12″, LG(x2)	6″, LG	6″, LG	6″, LG	6″, LG	6″, LG	6″, LG	6″, LG	6″, LG

HMS *Southampton*
(*Chatham*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	5	6/6	6/6	6	Small	-1	2	4	4

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 6″/45 Mk.xII	+1	3/6/9	3/1/1*	x2	ABCD[O] C[OOO] CDEF[O] D[OOO]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]			
UK 21″ Torpedo	-	5	-	x5	[O][O]			

Damage Track								
Hull Hits	[OO]		[OO]		[O]		[O]	
Speed	5		4		3		2	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
6″(x2)	6″(x2)	6″(x2)	6″, LG	6″, LG	6″, LG	6″, LG	6″, LG	6″

HMS *Carnarvon*
(*Devonshire*-class first-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
11	4	9/8	7/7	6	Medium	+0	3	5	22

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 7"/50 Mk.IV	+1	2/4/6	4/2/1	x2	ABCD[O] AC[O] BD[O] CDEF[O]				
UK 6"/45 Mk.VIII	+1	2/4/6	3/1/1	x2	C[O] CE[OO] D[O] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO O]				
UK 18" Torpedo	-	2	-	x3	[O][O]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OOO]		[OO]		
Speed	4		3		2		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
7", LG(x3)	7", LG(x3)	7", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	LG(x3)

HMS *Good Hope*
(*Drake*-class first-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
14	5	9/8	7/7	7	Medium	+0	3	5	16

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 9"/50 Mk.xI	+1	2/4/6	6/3/2	x2	ABCD[O] CDEF[O]				
UK 6"/45 Mk.VIII	+1	2/4/6	3/1/1	x2	AC[OO] BD[OO] C[OOOO] CE[OO] D[OOOO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OO]				
UK 18" Torpedoes	-	2	-	x3	[O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOO]		[OOO]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
9", 6", LG	6"(x2), LG	6", LG(x2)	6", LG(x2)	6", LG	6", LG	6", LG	6", LG	6", LG

HMS *Exeter*
(cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
9	6	5/5	5/5	5	Medium	+0	3	5	6

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 8"/50 Mk.VIII	+1	4/8/12	4/2/1*	x2	ABCD2[OO] CDEF2[O]				
UK 4"/45 Mk.V	+3	2/4/7	1/1/0*	x1	AC[O] BD[O] CE[O] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOO]				
UK 21" Torpedo	-	5	-	x5	[OOO][OOO]				

Damage Track									
Hull Hits	[OOO]		[OO]		[OO]		[OO]		
Speed	6		5		4		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
8", LG	8", LG	8"	4"	4"	4"	4"	LG	LG

HMS *New Zealand*
(*Indefatigable*-class battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
17	5	9/8	7/7	7	Large	+1	4	6	4
Armament	**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**				
UK 12″/45 Mk.x	+0	2/4/7	8/4/3	x2	ABCD2[O] ACDE2[O] BCDF2[O] CDEF2[O]				
UK 4″/50 Mk.VII	+2	2/3/5	2/1/1	x1	AC[OOOO] BD[OOOO] CE[OOOO] DF[OOOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOO]				
UK 18″ Torpedo	-	2	-	x3	[O][O][O]				
Damage Track									
Hull Hits	[OOOOO]		[OOOO]		[OOOO]		[OOOO]		
Speed	5		4		3		2		
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
12″, 4″	12″, LG	4″, LG	4″	4″	4″	4″	4″	4″	

HMS *Indomitable, Inflexible, Invincible*
(*Invincible*-class battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
16	5	9/8	7/7	7	Large	+1	4	6	4
Armament	**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**				
UK 12″/45 Mk.x	+0	2/4/7	8/4/3	x2	ABCD2[O] ACDE2[O] BCDF2[O] CDEF2[O]				
UK 4″/45 Mk.V	+3	2/4/7	1/1/0*	x1	AC[OO] BD[OO] C[OOOO] CE[OO] D[OOOO] DF[OO]				
UK 18″ Torpedo	-	2	-	x3	[O][O][O][O][O]				
Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOOO]		[OOOO]		
Speed	5		4		3		2		
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
12″, 4″	12″, 4″	4″	4″	4″	4″	4″	4″	4″	

HMS *Laforey*
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	7	5/5	5/5	5	V.Small	-2	1	3	1
Armament	**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**				
UK 4″/45 Mk.V	+3	2/4/7	1/1/0*	x1	ABCD[O] CD[O] CDEF[O]				
UK 21″ Torpedo	-	5	-	x5	[OO][OO]				
Damage Track									
Hull Hits	[O]		[O]		-		-		
Speed	7		4		-		-		
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″	4″	4″	4″	

HMS *Achilles, Ajax*
(*Leander*-class cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
8	7	7/7	6/6	6	Small	-1	2	4	4

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 6″/50 MKxxIII	+2	3/7/10	3/1/1*	x2	ABCD2[OO] CDEF2[OO]				
UK 4″/45 Mk.V	+3	2/4/7	1/1/0*	x1	AC[O] BD[O] CE[O] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
UK 21″ Torpedo	-	7	-	x6	[OOOO][OOOO]				

Damage Track									
Hull Hits	[OO]		[OO]		[OO]		[OO]		
Speed	7		6		4		3		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
6″, 4″	6″, LG	6″, LG	6″, LG	6″	4″	4″	4″	4″

HMS *Lion, Princess Royal*
(*Lion*-class battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
23	5	11/9	8/8	7	Large	+1	4	6	4

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 13″/45 Mk.V	+0	3/6/9	9/5/3	x2	ABCD2[OO] CD2[O] CDEF2[O]				
UK 4″/50 Mk.VII	+2	2/3/5	2/1/1	x1	AC[OOOO] BD[OOOO] CE[OOOO] DF[OOOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
UK 21″ Torpedo	-	5	-	x5	[O][O]				

Damage Track									
Hull Hits	[OOOOO O]		[OOOOO O]		[OOOOO O]		[OOOOO]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
13″	13″	4″	4″	4″	4″	4″	4″	LG

HMS *Meteor*
("*M*"-class destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	7	5/5	5/5	5	V.Small	-2	1	3	1

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 4″/45 Mk.V	+3	2/4/7	1/1/0*	x1	ABCD[O] CD[O] CDEF[O]				
UK 21″ Torpedo	-	5	-	x5	[OO][OO]				

Damage Track									
Hull Hits	[O]		[O]		-		-		
Speed	7		4		-		-		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″	4″	4″	4″

HMS *Defence*
(*Minotaur*-class first-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
14	5	9/8	7/7	6	Medium	+0	3	5	14
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 9"/50 Mk.xI	+1	2/4/6	6/3/2	x2	ABCD2[O] CDEF2[O]				
UK 7"/45 Mk.I	+1	2/4/6	4/2/1	x2	AC[OO] BD[OO] C[O] CE[OO] D[O] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOO]				
UK 18" Torpedo	-	2	-	x3	[O][O][O][O][O]				
Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOO]		[OOO]		
Speed	5		4		3		2		
Hit Location									
1	2	3	4	5	6	7	8	9
9", LG(x2)	7", LG	7", LG	7", LG	7", LG	7", LG	7", LG	LG(x2)	LG(x2)

HMS *Cornwall*, *Kent*, *Monmouth*
(*Monmouth*-class first-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
10	5	7/7	6/6	6	Medium	+0	3	5	12
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 6"/45 Mk.VIII	+1	2/4/6	3/1/1	x2	ABCD2[O] AC[OO] BD[OO] C[O] CDEF2[O] CE[OO] D[O] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO]				
UK 18" Torpedo	-	2	-	x3	[O][O]				
Damage Track									
Hull Hits	[OOO]		[OOO]		[OO]		[OO]		
Speed	5		4		3		2		
Hit Location									
1	2	3	4	5	6	7	8	9
6"(x2), LG	6"(x2), LG	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG	6", LG

HMS *Otranto*
(armed merchant cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
12	4	5/5	5/5	5	Medium	+0	3	5	0
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 5"/40 Mk.IV	+1	1/3/4	1/1/0	x1	AC[OO] BD[OO] CE[OO] DF[OO]				
Damage Track									
Hull Hits	[OOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		
Hit Location									
1	2	3	4	5	6	7	8	9
5"	5"	5"	5"	5"	5"	-	-	-

HMS *Tiger*
(battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
24	6	11/9	8/8	7	Large	+1	4	6	6

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 14″/45 Mk.V	+0	3/5/8	10/5/3	x2	ABCD2[OO] CDEF2[OO]			
UK 6″/45 Mk.VII	+1	2/4/6	3/1/1	x2	AC[OOO] BD[OOO] CE[OOO] DF[OOO]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]			
UK 21″ Torpedo	-	5	-	x5	[O][O][O][O]			

Damage Track								
Hull Hits	[OOOOO O]		[OOOOO O]		[OOOOO O]		[OOOOO O]	
Speed	6		5		4		2	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
13″	13″	6″	6″	6″	6″	6″	LG	-

CHINESE SHIPS

Chao Yung, Yang Wei
(*Chao Yung*-class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	3	5/5	5/5	5	V.Small	-2	1	3	2
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 10″/32 Mk.IV	+0	1/3/4	5/2/2	x1	AB[O] EF[O]				
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	C[OO] D[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OO]				
Damage Track									
Hull Hits		[O]		[O]		-		-	
Speed		3		2		-		-	
Hit Location									
1	2	3	4	5	6	7	8	9
10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)	10″, LG, 5″(x2)

Chih Yuan, Ching Yuan
(*Chih Yuan*-class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	4	5/6	5/6	7	V.Small	-2	1	3	8
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 8″/35	+0	1/3/4	3/1/1	x1	AB2[O] EF[O]				
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	ACE[O] BDF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OO]				
DEU 18″ Torpedo	-	0	-	x3	[O][O][O][O]				
Damage Track									
Hull Hits		[O]		[O]		[O]		-	
Speed		4		3		2		-	
Hit Location									
1	2	3	4	5	6	7	8	9
8″, 6″, LG(x2)	8″, 6″, LG(x2)	8″, 6″, LG(x2)	8″, LG(x3)	8″, LG(x3)	8″, LG(x3)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)

Fu Lung
(first-class torpedo boat)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	5	5/5	5/5	5	V.Small	-2	1	3	2
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[O]				
DEU 14″ Torpedo	-	0	-	x2	[OO][OO]				
Damage Track									
Hull Hits		[O]		-		-		-	
Speed		5		-		-		-	
Hit Location									
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

King Yuan, Lai Yuan
(*King Yuan*-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
4	3	9/8	7/7	6	Small	-1	2	4	0
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 8″/35	+0	1/3/4	3/1/1	x1	AB2[O]				
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	ACE[O] BDF[O]				
DEU 18″ Torpedo	-	0	-	x3	[O][O][O][O]				
Damage Track									
Hull Hits	[O]		[O]		[O]		[O]		
Speed	3		2		2		1		
Hit Location									
1	2	3	4	5	6	7	8	9	
8″	8″	6″	6″	6″	6″	6″	-	-	

Kuang Chia
(composite dispatch vessel)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	3	5/5	5/5	5	V.Small	-2	1	3	5
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	AB[O]				
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	C[OO] D[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
Damage Track									
Hull Hits	[O]		[O]		-		-		
Speed	3		2		-		-		
Hit Location									
1	2	3	4	5	6	7	8	9	
6″, 5″(x2)	6″, 5″(x2)	6″, 5″(x2)	6″, 5″(x2)	6″, 5″(x2)	5″(x2)	5″(x2)	5″(x2)	5″(x2)	

Kuang P'ing
(*Kuang Yi*-class torpedo gunboat)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	3	5/5	5/5	5	V.Small	-2	1	3	4
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	ACE[O] BDF[O] EF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]				
DEU 14″ Torpedo	-	0	-	x2	[O][O][O][O]				
Damage Track									
Hull Hits	[O]		[O]		-		-		
Speed	3		2		-		-		
Hit Location									
1	2	3	4	5	6	7	8	9	
5″(x2), LG(x2)	5″(x2), LG	5″(x2), LG	5″(x2), LG	5″(x2), LG	5″, LG(x2)	5″, LG(x2)	5″, LG(x2)	5″, LG(x2)	

Ping Yuen
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	2	9/8	7/7	6	V.Small	-2	1	3	0
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 10″/32 Mk.IV	+0	1/3/4	5/2/2	x1	AB[O]				
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	ACE[O] BDF[O]				
DEU 18″ Torpedo	-	0	-	x3	[O][O][O][O]				
Damage Track									
Hull Hits	[O]		[O]		[O]		-		
Speed	2		2		1		-		
Hit Location									
1	2	3	4	5	6	7	8	9	
10″	10″	10″	6″	6″	6″	6″	6″	6″	

Chen Yuen, *Ting Yuen*
(*Ting Yuen*-class armored turret ship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
8	3	11/9	8/7	6	Small	-1	2	4	0
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 12″/25 Mk.V	+0	1/3/4	5/3/2	x1	AC2[O] BD2[O]				
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	AB[O] EF[O]				
DEU 14″ Torpedo	-	0	-	x2	[O][O][O]				
Damage Track									
Hull Hits	[OO]		[OO]		[OO]		[OO]		
Speed	3		2		2		1		
Hit Location									
1	2	3	4	5	6	7	8	9	
12″	12″	6″	6″	-	-	-	-	-	

GERMAN SHIPS

Blücher
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
15	5	10/8	7/7	6	Medium	+0	3	5	11
Armament	**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**				
DEU 8″/45	+1	3/6/8	5/2/2*	x2	ABCD2[O] AC2[O] BD2[O] CDEF2[O] CE2[O] DF2[O]				
DEU 6″/45	+1	3/5/8	3/1/1*	x1	AC[OO] BD[OO] CE[OO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO]				
DEU 18″ Torpedo	-	2	-	x4	[O][O][O][O]				
Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOOO]		[OOO]		
Speed	5		4		3		2		
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
8″, LG	8″, LG	8″, LG	8″, LG	6″, LG	6″, LG	6″	6″	6″	

Leipzig
(*Bremen*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	5	5/6	5/6	7	Small	-1	2	4	5
Armament	**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**				
DEU 4″/40	+3	1/3/4	1/1/0*	x2	AC[OO] BD[OO] C[O] CE[OO] D[O] DF[OO]				
DEU 18″ Torpedo	-	2	-	x4	[O][O]				
Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	5		4		3		2		
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	

Derfflinger
(battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
23	5	13/10	9/8	7	Large	+1	4	6	3
Armament	**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**				
DEU 12″/50	+1	3/6/9	8/4/3	x2	ABCD2[OO] CDEF2[OO]				
DEU 6″/45	+1	3/5/8	3/1/1*	x1	AC[OOO] BD[OOO] CE[OOO] DF[OOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]				
DEU 18″ Torpedo	-	2	-	x4	[O][O][O][O]				
Damage Track									
Hull Hits	[OOOOO O]		[OOOOO O]		[OOOOO O]		[OOOOO]		
Speed	5		4		3		2		
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
12″	12″	6″	6″	6″	6″	6″	LG	LG	

Admiral Graf Spee
(*Deutschland*-class cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
12	6	7/7	6/6	6	Medium	+0	3	5	13

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 11"/52	+1	5/11/16	8/4/3*	x2	ABCD3[O] CDEF3[O]				
DEU 6"/55	+2	3/6/10	3/1/1*	x2	AC[O] BD[O] C[OO] CE[O] D[OO] DF[O]				
DEU 4"/65	+3	3/5/8	2/1/1*	x2	ACE2[O] BDF2[O] CDEF2[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOO]				
DEU 21" Torpedo	-	8	-	x6	[OOOO][OOOO]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OOO]		[OOO]		
Speed	6		5		4		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
11", 4"	11", LG	6", LG	6", LG	6"	6"	6"	6"	4"

Dresden
(light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	5	5/6	5/6	6	Small	-1	2	4	9

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 4"/40	+3	1/3/4	1/1/0*	x2	AC[OO] BD[OO] C[O] CE[OO] D[O] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO O]				
DEU 18" Torpedo	-	2	-	x4	[O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4"(x2), LG(x2)	4"(x2), LG(x2)	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG

Graudenz
(light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	6	7/7	6/7	7	Small	-1	2	4	0

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 4"/45	+3	2/4/6	1/1/0*	x2	AC[O] BD[O] C[OOOO] CDEF[OO] D[OOOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO O]				
DEU 20" Torpedo	-	5	-	x5	[O][O]				

Damage Track									
Hull Hits	[OO]		[OO]		[O]		[O]		
Speed	6		5		4		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG

G7
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	6	5/5	5/5	5	V.Small	-2	1	3	2

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]				
DEU 20″ Torpedo	-	5	-	x5	[OO][O][O]				

Damage Track									
Hull Hits		[O]		-		-		-	
Speed		7		-		-		-	

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
-	-	-	-	-	-	-	-	-

Rostock
(*Karlsruhe*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	6	7/7	6/7	7	Small	-1	2	4	0

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 4″/45	+3	2/4/6	1/1/0*	x2	AC[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O]				
DEU 20″ Torpedo	-	5	-	x5	[O][O]				

Damage Track									
Hull Hits		[OO]		[OO]		[O]		[O]	
Speed		6		5		4		2	

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)

Kolberg
(*Kolberg*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	5	5/5	5/5	5	Small	-1	2	4	0

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 4″/45	+3	2/4/6	1/1/0*	x2	AC[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O]				
DEU 20″ Torpedo	-	5	-	x5	[O][O]				

Damage Track									
Hull Hits		[OO]		[O]		[O]		[O]	
Speed		5		4		3		2	

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4″(x3)	4″(x3)	4″(x3)	4″(x3)	4″(x2)	4″(x2)	4″(x2)	4″(x2)	4″(x2)

Nürnberg
(*Königsberg*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	5	5/6	5/6	6	Small	-1	2	4	11

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 4"/40	+3	1/3/4	1/1/0*	x2	AC[OO] BD[OO] C[O] CE[OO] D[O] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO O]				
DEU 18" Torpedo	-	2	-	x4	[O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4"(x2), LG(x2)	4"(x2), LG(x2)	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG	4"(x2), LG

Stralsund
(*Magdeburg*-class light cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	5	7/7	6/7	7	Small	-1	2	4	0

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 4"/45	+3	2/4/6	1/1/0*	x2	AC[OO] BD[OO] C[OO] CE[OO] D[OO] DF[OO]				
DEU 20" Torpedo	-	5	-	x5	[O][O]				

Damage Track									
Hull Hits	[OO]		[OO]		[O]		[O]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
4"(x2)	4"(x2)	4"(x2)	4"(x2)	4"(x2)	4"(x2)	4"(x2)	4"(x2)	4"(x2)

Goeben, *Moltke*
(*Moltke*-class battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
20	5	12/10	9/8	7	Large	+1	4	6	8

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 11"/50	+1	3/6/8	7/4/2	x2	ABCD2[O] ACDE2[O] BCDF2[O] CDEF2[OO]				
DEU 6"/45	+1	3/5/8	3/1/1*	x1	AC[OOO] BD[OOO] CE[OOO] DF[OOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO O]				
DEU 20" Torpedo	-	5	-	x5	[O][O][O][O]				

Damage Track									
Hull Hits	[OOOOO]		[OOOOO]		[OOOOO]		[OOOOO]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
11", LG	11", LG	6", LG	6", LG	6", LG	6"	6"	LG	LG

Gneisenau, Scharnhorst
(*Scharnhorst*-class heavy cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	5	9/8	7/7	6	Medium	+0	3	5	15

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 8"/40	+1	2/3/5	5/2/2	x2	ABCD2[O] AC[O] BD[O] CDEF2[O] CE[O] DF[O]				
DEU 6"/45	+1	3/5/8	3/1/1*	x1	AC[O] BD[O] C[O] CE[O] D[O] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OO]				
DEU 18" Torpedo	-	2	-	x4	[O][O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	5		4		3		2		

Hit Location								
1	2	3	4	5	6	7	8	9
8", LG(x2)	8", LG(x2)	8", LG(x2)	8", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	LG(x3)

Seydlitz
(battlecruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
22	5	13/10	9/8	7	Large	+1	4	6	8

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 11"/50	+1	3/6/8	7/4/2	x2	ABCD2[O] ACDE2[O] BCDF2[O] CDEF2[OO]				
DEU 6"/45	+1	3/5/8	3/1/1*	x1	AC[OOO] BD[OOO] CE[OOO] DF[OOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO O]				
DEU 20" Torpedo	-	5	-	x5	[O][O][O][O]				

Damage Track									
Hull Hits	[OOOOO O]		[OOOOO O]		[OOOOO]		[OOOOO]		
Speed	5		4		3		2		

Hit Location								
1	2	3	4	5	6	7	8	9
11", LG	11", LG	6", LG	6", LG	6", LG	6"	6"	LG	LG

S31
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	7	5/5	5/5	5	V.Small	-2	1	3	2

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]				
DEU 20" Torpedo	-	5	-	x5	[OO][OO][O][O]				

Damage Track									
Hull Hits	[O]		-		-		-		
Speed	7		-		-		-		

Hit Location								
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

S176
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	7	5/5	5/5	5	V.Small	-2	1	3	2

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]				
DEU 20" Torpedo	-	2	-	x4	[O][O][O]				

Damage Track									
Hull Hits	[O]		-		-		-		
Speed	7		-		-		-		

Hit Location								
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

V1
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
1	6	5/5	5/5	5	V.Small	-2	1	3	2

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]				
DEU 20" Torpedo	-	5	-	x5	[OO][O][O]				

Damage Track									
Hull Hits	[O]		-		-		-		
Speed	6		-		-		-		

Hit Location								
1	2	3	4	5	6	7	8	9
-	-	-	-	-	-	-	-	-

V25
(destroyer)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	7	5/5	5/5	5	V.Small	-2	1	3	2

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]				
DEU 20" Torpedo	-	5	-	x5	[OO][OO][O][O]				

Damage Track									
Hull Hits	[O]		[O]		-		-		
Speed	7		4		-		-		

Hit Location								
1	2	3	4	5	6	7	8	9
LG(x3)	LG(x3)	LG(x3)	LG(x3)	LG(x3)	LG(x2)	LG(x2)	LG(x2)	LG(x2)

V180 (destroyer)									
Hull	**Speed**	**Belt**	**Ends**	**Deck**	**Size**	**Mod.**	**C&C**	**C.R.**	**A.A.R.**
1	6	5/5	5/5	5	V.Small	-2	1	3	2
Armament		**ROF**	**Rng.**	**Pen.**	**Dam.**	**Quantity**			
Light Guns		+3	1/2/3	1/0/0*	x1	[OOOOO]			
DEU 20" Torpedo		-	2	-	x4	[OO][OO][O][O]			
Damage Track									
Hull Hits		[O]		-		-		-	
Speed		7		-		-		-	
Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
-	-	-	-	-	-	-	-	-	

JAPANESE SHIPS

Adzuma
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
10	4	9/8	7/7	6	Medium	+0	3	5	24

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
DEU 8″/40	+1	2/3/5	5/2/2	x2	ABCD2[O] CDEF2[O]			
JAP 6″/40	+1	1/3/4	2/1/1	x2	AC[OO] BD[OO] C[OO] CE[OO] D[OO] DF[OO]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO O]			
JAP 18″ Torpedo	-	2	-	x4	[O][O][O][O][O]			

Damage Track									
Hull Hits	[OOO]		[OOO]		[OO]		[OO]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
8″, 6″, LG(x2)	8″, 6″, LG(x2)	6″(x2), LG(x2)	6″(x2), LG(x2)	6″, LG(x3)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)

Akitsushima
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
4	4	5/6	5/6	6	Small	-1	2	4	9

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	AC[O] BD[O] CE[O] DF[O]			
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	AB[O] C[OO] D[OO] EF[O]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO O]			
JAP 14″ Torpedo	-	1	-	x3	[O][O][O][O]			

Damage Track									
Hull Hits	[O]		[O]		[O]		[O]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
6″, 5″(x2), LG(x2)	6″, 5″(x2), LG	6″, 5″(x2), LG	6″, 5″(x2), LG	6″, 5″(x2), LG	6″, 5″, LG(x2)	6″, 5″, LG(x2)	6″, 5″, LG(x2)	6″, 5″, LG(x2)

Asahi
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
15	4	10/9	7/7	7	Medium	+0	3	5	31

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
JAP 12″/40	+0	2/4/6	7/3/2	x1	ABCD2[O] CDEF2[O]			
UK 6″/45 Mk.VII	+1	2/4/6	3/1/1	x2	AC[O] BD[O] C[OOOOO] CE[O] D[OOOOO] DF[O]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]			
JAP 18″ Torpedo	-	2	-	x4	[O][O][O][O]			

Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
12″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)

Asama, *Tokiwa*
(*Asama*-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
10	4	9/8	7/7	6	Medium	+0	3	5	19

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 8"/40	+1	2/3/5	5/2/2	x2	ABCD2[O] CDEF2[O]				
UK 6"/40 Mk.III	+1	1/3/4	2/1/1	x2	AC[OO] BD[OO] C[OOO] CE[OO] D[OOO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOO]				
JAP 18" Torpedo	-	2	-	x4	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OO]		[OO]		
Speed	4		3		2		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
8", 6", LG(x2)	8", 6", LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG	6"(x2), LG	6", LG(x2)	6", LG(x2)	6", LG(x2)

Chin Yen
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
8	3	12/10	9/8	7	Small	-1	2	4	11

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 12"/25 Mk.V	+0	1/3/4	5/3/2	x1	AC2[O] BD2[O]				
JAP 6"/40	+1	1/3/4	2/1/1	x2	ABCD[O] C[O] CDEF[O] D[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOO]				

Damage Track									
Hull Hits	[OO]		[OO]		[OO]		[OO]		
Speed	3		2		2		1		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
12", LG	12", LG	6", LG	6", LG	6", LG	6", LG	6", LG	LG	LG

Chitose, *Kasagi*
(*Chitose*-class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
6	5	5/6	5/6	7	Small	-1	2	4	18

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 8"/45	+0	3/5/8	4/2/1*	x1	ABCD[O] CDEF[O]				
UK 5"/40 Mk.IV	+1	1/3/4	1/1/0	x1	AC[O] BD[O] C[OOO] CE[O] D[OOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OO]				
JAP 18" Torpedo	-	2	-	x4	[O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[OO]		[O]		[O]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
8", 5", LG(x3)	8", 5", LG(x3)	8", 5", LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x2)

Chiyoda
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	4	7/7	6/6	6	V.Small	-2	1	3	17

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	AB[O] AC[O] BD[O] C[OO] CE[O] D[OO] DF[O] EF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO]				
JAP 14″ Torpedo	-	1	-	x3	[O][O][O]				

Damage Track									
Hull Hits	[O]		[O]		[O]		-		
Speed	4		3		2		-		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
5″(x4), LG(x3)	5″(x4), LG(x3)	5″(x4), LG(x3)	5″(x3), LG(x4)	5″(x3), LG(x4)	5″(x3), LG(x4)	5″(x3), LG(x3)	5″(x3), LG(x3)	5″(x3), LG(x3)

Fuji
(*Fuji*-class battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
12	4	14/10	10/8	6	Medium	+0	3	5	23

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 12″/40	+0	2/4/6	7/3/2	x1	ABCD2[O] CDEF2[O]				
JAP 6″/40	+1	1/3/4	2/1/1	x2	AC[O] BD[O] C[OOO] CE[O] D[OOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]				
JAP 18″ Torpedo	-	2	-	x4	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
12″, 6″, LG(x2)	12″, LG(x3)	6″, LG(x3)	6″, LG(x3)	6″, LG(x3)	6″, LG(x3)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)

Fuso
(central battery ironclad)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	3	9/7	7/6	5	Small	-1	2	4	17

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
UK 9″/40 Mk.VIII	+0	2/3/5	5/2/2	x2	AC[O] BD[O] CE[O] DF[O]				
RUS 6″/50	+1	2/4/6	3/1/1*	x1	AB[O] ACE[O] BDF[O] EF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO O]				
JAP 18″ Torpedo	-	2	-	x3	[O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	3		2		2		1		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
9″, 6″, LG(x3)	9″, 6″, LG(x3)	9″, 6″, LG(x3)	9″, 6″, LG(x3)	9″, 6″, LG(x3)	9″, LG(x4)	9″, LG(x4)	6″, LG(x3)	6″, LG(x3)

Idzumo, Iwate
(*Idzumo*-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
10	4	9/8	7/7	6	Medium	+0	3	5	20

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 8"/40	+1	2/3/5	5/2/2	x2	ABCD2[O] CDEF2[O]				
JAP 6"/40	+1	1/3/4	2/1/1	x2	AC[OO] BD[OO] C[OOO] CE[OO] D[OOO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOO]				
JAP 18" Torpedo	-	2	-	x4	[O][O][O][O]				

Damage Track									
Hull Hits		[OOO]		[OOO]		[OO]		[OO]	
Speed		4		3		2		2	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
8", 6", LG(x2)	8", 6", LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG	6", LG(x2)	6", LG(x2)	6", LG(x2)

Kasuga, Nisshin
(*Kasuga*-class armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
9	4	8/7	7/7	6	Medium	+0	3	5	16

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 10"/45	+0	4/7/11	6/3/2*	x1	ABCD[O]				
JAP 8"/45	+0	3/5/8	4/2/1*	x1	CDEF2[O]				
UK 6"/45 Mk.VII	+1	2/4/6	3/1/1	x2	AC[OO] BD[OO] C[OOO] CE[OO] D[OOO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OO]				
JAP 18" Torpedo	-	2	-	x4	[O][O][O][O]				

Damage Track									
Hull Hits		[OOO]		[OO]		[OO]		[OO]	
Speed		4		3		2		2	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
10", 6", LG(x2)	8", 6", LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG	6", LG(x2)	6", LG(x2)

Hiei
(*Kongo*-class armored corvette)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	3	7/6	6/6	5	V.Small	-2	1	3	5

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 6"/40 QF	+1	1/3/4	2/1/1	x2	AC[O] BD[O] C[OO] CE[O] D[OO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OO]				
JAP 14" Torpedo	-	1	-	x3	[O][O]				

Damage Track									
Hull Hits		[O]		[O]		[O]		-	
Speed		3		2		2		-	

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
6"(x3), LG	6"(x3), LG	6"(x3), LG	6"(x3)	6"(x3)	6"(x3)	6"(x2), LG	6"(x2), LG	6"(x2), LG

Hashidate, Itsukushima
(*Matsushima*-class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	3	5/6	5/6	6	Small	-1	2	4	17

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 12"/40	+0	2/4/6	7/3/2	x1	ABCD[O]				
UK 5"/40 Mk.IV	+1	1/3/4	1/1/0	x1	C[OOOOO] D[OOOOO] EF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOO]				
JAP 14" Torpedo	-	1	-	x3	[O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	3		2		2		1		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
12", 5"(x2), LG(x2)	12", 5"(x2), LG(x2)	5"(x3), LG(x2)	5"(x3), LG(x2)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)	5"(x2), LG(x3)

Matsushima
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	3	5/6	5/6	6	Small	-1	2	4	23

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 12"/40	+0	2/4/6	7/3/2	x1	CDEF[O]				
UK 5"/40 Mk.IV	+1	1/3/4	1/1/0	x1	A[O] B[O] C[OOOOO] D[OOOOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OO]				
JAP 14" Torpedo	-	1	-	x3	[O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	3		2		2		1		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
12", 5"(x2)	12", 5"(x2)	5"(x3)	5"(x3)	5"(x3)	5"(x3)	5"(x2)	5"(x2)	5"(x2)

Mikasa
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
15	4	10/9	7/7	7	Medium	+0	3	5	31

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 12"/40	+0	2/4/6	7/3/2	x1	ABCD2[O] CDEF2[O]				
UK 6"/45 Mk.VII	+1	2/4/6	3/1/1	x2	AC[OO] BD[OO] C[OOO] CE[OO] D[OOO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]				
JAP 18" Torpedo	-	2	-	x4	[O][O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
12", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)

Naniwa
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	4	5/6	5/6	6	Small	-1	2	4	9
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 10″/45	+0	4/7/11	6/3/2*	x1	AB[O] EF[O]				
UK 6″/40 Mk.III	+1	1/3/4	2/1/1	x2	C[OOO] D[OOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OO]				
JAP 14″ Torpedo	-	1	-	x3	[O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
10″, 6″, LG	10″, 6″	10″, 6″	10″, 6″	6″(x2)	6″(x2)	6″, LG	6″, LG	6″, LG

Shikishima
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
14	4	10/9	7/7	7	Medium	+0	3	5	31
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 12″/40	+0	2/4/6	7/3/2	x1	ABCD2[O] CDEF2[O]				
UK 6″/40	+1	1/3/4	2/1/1	x2	AC[O] BD[O] C[OOOOO] CE[O] D[OOOOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]				
JAP 18″ Torpedo	-	2	-	x4	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
12″, 6″, LG(x2)	6″, LG(x3)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)

Takasago
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	5	5/6	5/6	7	Small	-1	2	4	18
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 8″/40	+1	2/3/5	5/2/2	x2	ABCD[O] CDEF[O]				
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	C[OOOOO] D[OOOOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OO]				
JAP 18″ Torpedo	-	2	-	x4	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	5		4		3		2		

Hit Location								
1	2	3	4	5	6	7	8	9
8″, 5″(x2), LG(x3)	8″, 5″(x2), LG(x3)	8″, 5″(x2), LG(x3)	8″, 5″(x2), LG(x3)	5″(x2), LG(x4)	5″(x2), LG(x4)	5″(x2), LG(x4)	5″(x2), LG(x4)	5″(x2), LG(x3)

Niitaka, Tsushima
(*Tsushima*-class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
4	4	5/6	5/6	7	Small	-1	2	4	13

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 6″/40	+1	1/3/4	2/1/1	x2	ABCD[O] AC[O] BD[O] CDEF[O] CE[O] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOO]				

Damage Track									
Hull Hits	[O]		[O]		[O]		[O]		
Speed	4		3		2		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
6″(x2), LG(x4)	6″(x2), LG(x3)	6″(x2), LG(x3)	6″(x2), LG(x3)	6″(x2), LG(x3)	6″, LG(x4)	6″, LG(x4)	6″, LG(x4)	6″, LG(x4)

Yakumo
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
10	4	9/8	7/7	6	Medium	+0	3	5	19

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
DEU 8″/40	+1	2/3/5	5/2/2	x2	ABCD2[O] CDEF2[O]				
JAP 6″/40	+1	1/3/4	2/1/1	x2	AC[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOO]				
JAP 18″ Torpedo	-	2	-	x4	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OO]		[OO]		
Speed	4		3		2		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
8″, 6″, LG(x2)	8″, 6″, LG(x2)	6″(x2), LG	6″(x2), LG	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)	6″, LG(x2)

Yoshino
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
5	5	5/6	5/6	7	Small	-1	2	4	24

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
JAP 6″/40 QF	+1	1/3/4	2/1/1	x2	AB[O] AC[O] BD[O] EF[O]				
UK 5″/40 Mk.IV	+1	1/3/4	1/1/0	x1	C[OOO] CE[O] D[OOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO]				
JAP 14″ Torpedo	-	1	-	x3	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[O]		[O]		[O]		
Speed	5		4		3		2		

Hit Location								
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
6″, 5″(x2), LG(x3)	6″, 5″(x2), LG(x3)	6″, 5″(x2), LG(x3)	6″, 5″, LG(x3)	6″, 5″, LG(x3)	6″, 5″, LG(x3)	6″, 5″, LG(x3)	5″(x2), LG(x3)	5″(x2), LG(x3)

RUSSIAN SHIPS

Askold
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
7	5	5/6	5/6	7	Small	-1	2	4	22

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 6"/45	+2	2/3/5	2/1/1	x2	AC[OO] BD[OO] C[OO] CE[OO] D[OO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO]				
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O][O][O]				

Damage Track									
Hull Hits	[OO]		[OO]		[OO]		[O]		
Speed	5		4		3		2		

Hit Location								
1	2	3	4	5	6	7	8	9
6"(x2), LG(x3)	6"(x2), LG(x3)	6"(x2), LG(x3)	6"(x2), LG(x3)	6"(x2), LG(x3)	6"(x2), LG(x2)	6", LG(x3)	6", LG(x3)	6", LG(x3)

Bogatyr
(class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
8	5	5/6	5/6	6	Small	-1	2	4	22

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 6"/45	+2	2/3/5	2/1/1	x2	ABCD2[O] C[OOOO] CDEF2[O] D[OO] D[OOOO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO]				
RUS 15" Torpedo	-	0	-	x3	[O][O]				

Damage Track									
Hull Hits	[OO]		[OO]		[OO]		[OO]		
Speed	5		4		3		2		

Hit Location								
1	2	3	4	5	6	7	8	9
6"(x2), LG(x2)	6"(x2), LG(X2)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x2)	6", LG(x2)

Evstafi, Iaonn Zlatoust
(*Evstafi*-class battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	3	10/9	7/7	7	Medium	+0	3	5	20

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 12"/40	+0	3/6/9	7/4/2*	x2	ABCD2[O] CDEF2[O]				
RUS 8"/50	+1	3/5/8	4/2/1*	x2	AC[O] BD[O] CE[O] DF[O]				
RUS 6"/45	+2	2/3/5	2/1/1	x2	AC[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOO]				
RUS 18" Torpedo	-	0	-	x3	[O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	3		2		2		1		

Hit Location								
1	2	3	4	5	6	7	8	9
12", 6", LG	8", 6", LG	8", 6", LG	8", 6", LG	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG	6", LG

Gromoboi
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	4	9/8	7/7	7	Medium	+0	3	5	31

Armament	ROF	Rng.	Pen.	Dam.	Quantity			
RUS 8"/45	+0	2/4/6	4/2/1*	x1	AC[O] BD[O] CE[O] DF[O]			
RUS 6"/45	+2	2/3/5	2/1/1	x2	A[O] AC[O] B[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O] E[O] F[O]			
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OO]			
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O]			

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
8", 6", LG	8", 6", LG	8", 6", LG	6"(x2), LG	6"(x2)	6", LG	6", LG	6", LG	6", LG

Gremyashchi, *Grozyashchi*, *Otvajni*
(*Grozyashchi*-class armored gun vessel)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
3	3	7/7	6/6	6	V.Small	-2	1	3	9

Armament	ROF	Rng.	Pen.	Dam.	Quantity
RUS 9"/35	+0	1/3/4	4/2/1	x2	AB[O]
RUS 6"/35	+0	1/3/4	2/1/1	x1	EF[O]
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO]
RUS 15" Torpedo	-	0	-	x3	[O][O]

Damage Track								
Hull Hits	[O]		[O]		[O]		-	
Speed	3		2		2		-	

Hit Location								
1	2	3	4	5	6	7	8	9
9", 6", LG(x2)	9", LG(x3)	9", LG(x3)	9", LG(x3)	9", LG(x3)	6", LG(x3)	6", LG(x2)	6", LG(x2)	6", LG(x2)

Korietz, *Mandjur*
(*Korietz*-class gun vessel)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	3	5/5	5/5	5	V.Small	-2	1	3	7

Armament	ROF	Rng.	Pen.	Dam.	Quantity
RUS 8"/35	+0	1/3/4	3/1/1	x1	AC[O] BD[O]
RUS 6"/35	+0	1/3/4	2/1/1	x1	EF[O]
Light Guns	+3	1/2/3	1/0/0*	x1	[OOO]
RUS 15" Torpedo	-	0	-	x3	[O]

Damage Track								
Hull Hits	[O]		[O]		-		-	
Speed	3		2		-		-	

Hit Location								
1	2	3	4	5	6	7	8	9
8", 6", LG(x2)	8", 6", LG	8", 6", LG	8", 6", LG	8", 6", LG	8", LG(x2)	8", LG(x2)	8", LG(x2)	8", LG(x2)

Novik
(protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
4	5	5/6	5/6	6	Small	-1	2	4	7
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 5"/45	+3	2/4/6	2/1/1*	x2	AC[O] BD[O] C[O] CE[O] D[O] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOO]				
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O][O]				
Damage Track									
Hull Hits		[O]		[O]		[O]		[O]	
Speed		5		4		3		2	
Hit Location									
1	2	3	4	5	6	7	8	9	
5"(x2), LG	5"(x2), LG	5"(x2), LG	5"(x2), LG	5"(x2), LG	5", LG	5", LG	5", LG	5", LG	

Diana, *Pallada*
(*Pallada*-class protected cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
8	4	5/6	5/6	7	Small	-1	2	4	32
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 6"/45	+2	2/3/5	2/1/1	x2	A[O] ABCD[O] AC[O] B[O] BD[O] C[O] CDEF[O] CE[O] D[O] DF[O] E[O] F[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OO]				
RUS 15" Torpedo	-	0	-	x3	[O][O][O]				
Damage Track									
Hull Hits		[OO]		[OO]		[OO]		[OO]	
Speed		4		3		2		2	
Hit Location									
1	2	3	4	5	6	7	8	9	
6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6"(x2), LG(x2)	6", LG(x3)	6", LG(x2)	6", LG(x2)	6", LG(x2)	

Pantelimon
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	3	10/9	7/7	7	Medium	+0	3	5	20
Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 12"/40	+0	3/6/9	7/4/2*	x2	ABCD2[O] CDEF2[O]				
RUS 6"/45	+2	2/3/5	2/1/1	x2	AC[OO] BD[OO] C[OOOO] CE[OO] D[OOOO] DF[OO]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOO]				
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O][O]				
Damage Track									
Hull Hits		[OOOO]		[OOO]		[OOO]		[OOO]	
Speed		3		2		2		1	
Hit Location									
1	2	3	4	5	6	7	8	9	
12", 6", LG	6"(x2), LG	6"(x2), LG	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG	6", LG	

Peresviet, Pobieda
(*Peresviet*-class battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	4	10/9	7/7	7	Medium	+0	3	5	50

Armament	ROF	Rng.	Pen.	Dam.	Quantity		
RUS 10"/45	+0	2/5/7	5/3/2	x1	ABCD2[O] CDEF2[O]		
RUS 6"/45	+2	2/3/5	2/1/1	x2	AB[O] AC[OO] BD[OO] C[O] CE[OO] D[O] DF[OO]		
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]		
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O][O]		

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
10", LG(x4)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)

Poltava, Sevastopol
(*Petropavlovsk*-class battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
12	3	13/10	9/8	7	Medium	+0	3	5	47

Armament	ROF	Rng.	Pen.	Dam.	Quantity		
RUS 12"/40	+0	3/6/9	7/4/2	x2	ABCD2[O] CDEF2[O]		
RUS 6"/45	+2	2/3/5	2/1/1	x2	AC2[O] BD2[O] C[OO] CE2[O] D[OO] DF2[O]		
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OO]		
RUS 18" Torpedo	-	0	-	x3	[O][O][O][O][O][O]		

Damage Track									
Hull Hits	[OOO]		[OOO]		[OOO]		[OOO]		
Speed	3		2		2		1		

Hit Location								
1	2	3	4	5	6	7	8	9
12", LG(x2)	12", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG(x2)	6", LG	LG(x2)

Retvizan
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	4	10/9	6/7	7	Medium	+0	3	5	57

Armament	ROF	Rng.	Pen.	Dam.	Quantity		
RUS 12"/40	+0	3/6/9	7/4/2	x2	ABCD2[O] CDEF2[O]		
RUS 6"/45	+2	2/3/5	2/1/1	x2	AC[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O]		
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]		
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O][O][O]		

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location								
1	2	3	4	5	6	7	8	9
12", LG(x4)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)

Rossia
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
14	4	9/8	7/7	7	Medium	+0	3	5	52

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 8"/45	+0	2/4/6	4/2/1*	x1	AC[O] BD[O] CE[O] DF[O]				
RUS 6"/45	+2	2/3/5	2/1/1	x2	AB[OOO] C[OOOOO O] D[OOOOO O] EF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO]				
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location									
1	2	3	4	5	6	7	8	9	
8", 6", LG(x2)	8", 6", LG(x2)	8", 6", LG(x2)	6"(x2), LG(x2)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	6", LG(x3)	

Rostislav
battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
10	3	12/10	9/8	7	Medium	+0	3	5	32

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 10"/45	+0	2/5/7	5/3/2*	x1	ABCD2[O] CDEF2[O]				
RUS 6"/45	+2	2/3/5	2/1/1	x2	AC2[O] BD2[O] CE2[O] DF2[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO O]				
RUS 18" Torpedo	-	0	-	x3	[O][O][O][O][O][O]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OO]		[OO]		
Speed	3		2		2		1		

Hit Location									
1	2	3	4	5	6	7	8	9	
10", LG(x2)	10", LG(x2)	6", LG	6", LG	6", LG	6", LG	LG(x2)	LG(x2)	LG(x2)	

Rurik
(armored cruiser)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
12	4	9/8	7/7	7	Medium	+0	3	5	19

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 8"/35	+0	1/3/4	3/1/1	x1	AC[O] BD[O] CE[O] DF[O]				
RUS 6"/45	+2	2/3/5	2/1/1	x2	A[O] B[O] C[OOOOO O] D[OOOOO O] E[O] F[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OO]				
RUS 15" Torpedo	-	0	-	x3	[O][O][O][O]				

Damage Track									
Hull Hits	[OOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location									
1	2	3	4	5	6	7	8	9	
8", 6", LG	8", 6", LG	8", 6", LG	6"(x2), LG	6"(x2), LG	6"(x2), LG	6", LG	6", LG	6", LG	

Sivuch
(*Sivuch*-class gun vessel)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
2	2	5/5	5/5	5	V.Small	-2	1	3	9

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 9″/35	+0	1/3/4	4/2/1	x2	AB[O]				
RUS 6″/35	+0	1/3/4	2/1/1	x1	CDEF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO O]				

Damage Track									
Hull Hits	[O]		[O]		-		-		
Speed	2		1		-		-		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
9″, 6″, LG(x5)	9″, LG(x6)	9″, LG(x6)	9″, LG(x6)	9″, LG(x6)	6″, LG(x6)	6″, LG(x5)	6″, LG(x5)	6″, LG(x5)	

Tri Svititelia
(turret ship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	3	14/11	10/9	7	Medium	+0	3	5	4

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 12″/40	+0	3/6/9	7/4/2*	x2	ABCD2[O] CDEF2[O]				
RUS 6″/45	+2	2/3/5	2/1/1	x2	AC[O] BD[O] C[OOOO] CE[O] D[OOOO] DF[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOO]				
RUS 18″ Torpedo	-	0	-	x3	[O][O][O][O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	3		2		2		1		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
12″, LG	6″, LG	6″, LG	6″	6″	6″	6″	6″	6″	

Tseseravitch
(battleship)

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.
13	4	11/9	9/8	7	Medium	+0	3	5	40

Armament	ROF	Rng.	Pen.	Dam.	Quantity				
RUS 12″/40	+0	3/6/9	7/4/2	x2	ABCD2[O] CDEF2[O]				
RUS 6″/45	+2	2/3/5	2/1/1	x2	AC2[O] ACE2[O] BD2[O] BDF2[O] CE2[O] DF2[O]				
Light Guns	+3	1/2/3	1/0/0*	x1	[OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO OOOOO O]				
RUS 15″ Torpedo	-	0	-	x3	[O][O][O][O]				

Damage Track									
Hull Hits	[OOOO]		[OOO]		[OOO]		[OOO]		
Speed	4		3		2		2		

Hit Location									
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	
12″, LG(x3)	6″, LG(x3)	6″, LG(x3)	6″, LG(x2)	6″, LG(x2)	LG(x3)	LG(x3)	LG(x3)	LG(x3)	

GUN DATA

These country abbreviations are used in the following tables:

DEU = Germany (*Deutschland*)
ESP = Spain (*España*)
FRA = France
ITA = Italy (*Italia*)

JAP = Japan (*Japon*)
NED = Holland (*Nederland*)
OST = Austria-Hungary (*Österreich*)
RUS = Russia (*Russie*)
SVE = Sweden (*Sverige*)
UK = United Kingdom
USA = United States of America

Year	Gun	ROF	Range	Pen	Dam	Plunge?
1934	DEU 16″(41)/52	+0	5/11/16	13/6/4*	3	Yes
1913	DEU 15″(38)/45	+1	3/6/9	11/5/4	3	-
1934	DEU 15″(38)/52	+1	5/11/16	11/6/4*	3	Yes
1914	DEU 14″(35)/45	+1	3/6/9	10/5/3	3	-
1908	DEU 12″(31)/50	+1	3/6/9	8/4/3	2	-
1904	DEU 11″(28)/40	+0	3/5/8	6/3/2*	2	Yes
1907	DEU 11″(28)/45	+1	3/6/8	7/4/2	2	-
1909	DEU 11″(28)/50	+1	3/6/8	7/4/2	2	-
1928	DEU 11″(28)/52	+1	5/11/16	8/4/3*	2	Yes
1934	DEU 11″(28)/55	+1	6/12/18	8/4/3*	3	Yes
1895	DEU 9″(24)/40	+1	2/4/6	5/2/2*	2	Yes
1895	DEU 8″(21)/40	+1	2/3/5	5/2/2	2	-
1909	DEU 8″(21)/45	+1	3/6/8	5/2/2*	2	Yes
1934	DEU 8″(20)/60	+1	5/10/15	5/2/2*	2	Yes
1904	DEU 7″(17)/40	+1	2/4/6	3/2/1	2	-
1906	DEU 6″(15)/45	+1	3/5/8	3/1/1*	1	Yes
1934	DEU 6″(15)/45	+3	3/5/8	2/1/1*	2	Yes
1928	DEU 6″(15)/55	+2	3/6/10	3/1/1*	2	Yes
1936	DEU 6″(15)/55	+2	3/6/10	3/1/1*	2	Yes
1925	DEU 6″(15)/60	+2	4/7/11	3/2/1*	2	Yes
1900	DEU 4″(11)/40	+3	1/3/4	1/1/0*	2	Yes
1906	DEU 4″(11)/45	+3	2/4/6	1/1/0*	2	Yes
1932	DEU 4″(11)/45	+3	2/4/7	1/1/0*	2	Yes
1928	DEU 4″(11)/55	+3	3/5/8	2/1/1*	2	Yes
1933	DEU 4″(11)/65	+3	3/5/8	2/1/1*	2	Yes
1909	ESP 13″(34)/45 Mk.VI	+0	3/6/9	9/5/3	2	-
1884	ESP 13″(32)/35	+0	2/3/5	6/3/2	1	-
1910	ESP 12″(31)/50 VSM	+0	3/5/8	9/4/3	2	-
1883	ESP 11″(28)/35	+0	2/3/5	5/2/2	1	-
1894	ESP 9″(24)/42 Canet-Guillen	+0	2/4/6	5/2/2	1	-
1924	ESP 8″(20)/50 1924 Mk.D	+1	4/9/13	5/2/2*	2	Yes
1915	ESP 6″(15)/50 Vickers-Carraca	+1	3/6/9	3/1/1*	2	Yes
1932	ESP 5″(13)/38 Mk.12	+3	2/5/7	2/1/1*	2	Yes
1939	ESP 5″(13)/54 Mk.16	+3	3/7/10	2/1/1*	2	Yes
1928	ESP 5″(12)/45 Mk.IX,XII	+2	2/5/7	2/1/1*	1	Yes
1933	ESP 5″(12)/45 Mk.F	+3	3/6/9	2/1/1*	2	Yes
1933	ESP 4″(11)/65	+3	3/5/8	2/1/1*	2	Yes
1935	FRA 15″(38)/45	+0	6/12/18	12/6/4*	3	Yes
1912	FRA 13″(34)/45	+0	2/4/6	9/5/3*	2	Yes
1931	FRA 13″(33)/50	+0	6/12/18	10/5/3*	2	Yes

Year	Gun	ROF	Range	Pen	Dam	Plunge?
1906	FRA 12″(31)/45	+0	4/8/12	8/4/3*	2	Yes
1902	FRA 9″(24)/50	+0	3/7/10	6/3/2*	2	Yes
1924	FRA 8″(20)/50	+1	5/9/14	5/2/2*	2	Yes
1931	FRA 8″(20)/55	+1	4/9/13	5/2/2*	2	Yes
1902	FRA 8″(19)/50	+0	4/8/11	4/2/1*	1	Yes
1920	FRA 6″(16)/50	+1	4/8/11	3/2/1*	1	Yes
1930	FRA 6″(15)/55	+1	4/8/12	3/2/1*	2	Yes
1923	FRA 5″(14)/40	+1	3/6/8	2/1/1*	1	Yes
1927	FRA 5″(14)/40	+2	2/5/7	2/1/1*	2	Yes
1929	FRA 5″(14)/45	+2	3/6/9	2/1/1*	2	Yes
1910	FRA 5″(14)/55	+1	2/5/7	2/1/1*	1	Yes
1919	FRA 5″(13)/40	+1	3/6/8	2/1/1*	1	Yes
1924	FRA 5″(13)/40	+1	3/5/8	2/1/1*	1	Yes
1930	FRA 5″(13)/52	+3	3/6/9	2/1/1*	2	Yes
1930	FRA 4″(10)/45	+2	2/5/7	2/1/1*	2	Yes
1915	ITA 15″(38)/40	+0	3/6/9	10/5/3	3	-
1934	ITA 15″(38)/50	+0	6/12/19	12/6/4*	2	Yes
1934	ITA 13″(32)/44	+0	4/9/13	9/5/3*	2	Yes
1908	ITA 12″(31)/40	+0	3/6/9	8/4/3	2	-
1909	ITA 12″(31)/46	+0	3/7/10	9/4/3	2	-
1908	ITA 10″(25)/45	+1	4/7/11	6/3/2*	2	Yes
1924	ITA 8″(20)/50	+1	4/8/12	5/2/2*	2	Yes
1927	ITA 8″(20)/53	+1	5/9/14	5/2/2*	2	Yes
1908	ITA 7″(19)/45	+1	3/6/10	4/2/1*	1	Yes
1926	ITA 6″(15)/53	+1	4/8/12	3/2/1*	2	Yes
1934	ITA 6″(15)/55	+1	4/8/11	3/2/1*	1	Yes
1938	ITA 5″(14)/45	+2	3/6/9	2/1/1*	1	Yes
1918	ITA 5″(12)/45	+2	2/5/7	2/1/1*	1	Yes
1931	ITA 5″(12)/45	+2	2/4/6	2/1/1*	1	Yes
1926	ITA 5″(12)/50	+2	3/6/10	2/1/1*	1	Yes
1914	ITA 4″(10)/35	+2	2/3/5	1/1/0*	1	Yes
1917	ITA 4″(10)/45	+2	2/4/7	2/1/1*	1	Yes
1924	ITA 4″(10)/47	+2	2/4/7	2/1/1*	1	Yes
1938	JAP 20″(51)/45 Type 98	+0	6/12/18	17/8/6*	3	Yes
1918	JAP 18″(46)/45 Type 5	+0	5/10/14	14/7/5*	3	Yes
1939	JAP 18″(46)/45 Type 94	+0	6/12/18	15/7/5*	3	Yes
1914	JAP 16″(41)/45 Type 3	+0	6/11/17	13/6/4*	3	Yes
1935	JAP 16″(41)/45 Type 90	+0	6/11/17	15/7/5*	4	Yes
1908	JAP 14″(35)/45 Type 41	+0	5/10/16	10/5/3*	3	Yes
1884	JAP 13″(32)/35	+0	2/3/5	6/3/2	1	-
1898	JAP 12″(31)/40 EOC	+0	2/4/6	7/3/2	1	-
1904	JAP 12″(31)/45	+0	3/6/9	8/4/3	1	-
1908	JAP 12″(31)/50	+0	4/7/11	8/4/3*	1	Yes
1904	JAP 10″(25)/40 EOC	+0	3/5/8	5/3/2	1	-
1894	JAP 10″(25)/45	+0	4/7/11	6/3/2*	1	Yes
1904	JAP 8″(20)/45 Type 41	+0	3/5/8	4/2/1*	1	Yes
1914	JAP 8″(20)/50 Type 3/2	+1	4/9/13	5/2/2*	2	Yes
1920	JAP 8″(20)/50 Type 3/1	+1	4/8/12	4/2/1*	2	Yes
1933	JAP 6″(16)/60 Type 3	+2	4/8/12	3/2/1*	2	Yes

Year	Gun	ROF	Range	Pen	Dam	Plunge?
1895	JAP 6"(15)/40 QF	+1	1/3/4	2/1/1	2	-
1908	JAP 6"(15)/45 Type 41	+1	2/4/6	3/1/1	1	-
1912	JAP 6"(15)/50 Type 41	+1	3/6/9	3/1/1*	1	Yes
1922	JAP 5"(14)/40 Type 11	+1	2/5/7	2/1/1*	1	Yes
1914	JAP 5"(14)/50 Type 3	+2	3/6/9	3/1/1*	2	Yes
1928	JAP 5"(13)/40 Type 88,89	+2	2/4/6	2/1/1*	2	Yes
1914	JAP 5"(13)/50 Type 3	+2	3/5/8	2/1/1*	2	Yes
1939	JAP 5"(13)/54 Mk.16	+3	3/7/10	2/1/1*	2	Yes
1914	JAP 5"(12)/45 Type 3,11	+1	2/5/7	2/1/1*	1	Yes
1921	JAP 5"(12)/45 Type 10	+2	2/5/7	2/1/1*	1	Yes
1928	JAP 4"(10)/50 Type 88	+1	2/5/7	2/1/1*	1	Yes
1938	JAP 4"(10)/65 Type 98	+3	3/6/9	2/1/1*	2	Yes
1900	NED 11"(28)/43	+0	2/5/7	7/4/2	2	-
1935	NED 6"(15)/50 Mk.9-11	+1	4/8/12	3/1/1*	1	Yes
1939	NED 6"(15)/53	+1	4/8/11	3/1/1*	2	Yes
1924	NED 5"(12)/50	+2	3/6/9	2/1/1*	2	Yes
1934	NED 4"(10)/45 QF HA Mk.XVI,XXI	+3	3/5/8	2/1/1*	2	Yes
1914	OST 14"(35)/45	+0	4/7/11	8/4/3	3	-
1910	OST 12"(31)/45	+0	3/6/9	8/4/3	2	-
1905	OST 7"(19)/42	+1	3/6/9	4/2/1	1	-
1910	OST 6"(15)/50	+1	2/3/5	3/1/1	1	-
1910	OST 4"(10)/50	+2	2/4/7	2/1/1*	1	Yes
1937	RUS 16"(41)/50 B-37	+1	7/13/20	14/7/5*	3	Yes
1913	RUS 14"(36)/52	+1	3/7/10	10/5/3*	3	Yes
1878	RUS 12"(31)/30	+0	1/3/4	5/3/2	1	-
1886	RUS 12"(31)/35	+0	2/3/5	6/3/2	1	-
1891	RUS 12"(31)/40	+0	3/6/9	7/4/2*	2	Yes
1938	RUS 12"(31)/50 B-50	+1	7/14/21	10/5/3*	3	Yes
1907	RUS 12"(31)/52	+0	4/7/11	8/4/3*	2	Yes
1891	RUS 10"(25)/45	+0	2/5/7	5/3/2*	1	Yes
1906	RUS 10"(25)/50	+0	3/5/8	7/3/2	2	-
1877	RUS 9"(23)/35	+0	1/3/4	4/2/1	2	-
1885	RUS 8"(20)/35	+0	1/3/4	3/1/1	1	-
1892	RUS 8"(20)/45	+0	2/4/6	4/2/1*	1	Yes
1905	RUS 8"(20)/50	+1	3/5/8	4/2/1*	2	Yes
1929	RUS 7"(18)/60	+1	5/11/16	4/2/1*	2	Yes
1882	RUS 6"(15)/35	+0	1/3/4	2/1/1	1	-
1892	RUS 6"(15)/45	+2	2/3/5	2/1/1	2	-
1908	RUS 6"(15)/50	+1	2/4/6	3/1/1*	1	Yes
1938	RUS 6"(15)/57	+2	5/9/14	3/2/1*	2	Yes
1930	RUS 5"(13)/50	+2	4/8/11	2/1/1*	2	Yes
1912	RUS 5"(13)/55 Mk.A,B	+2	2/4/7	2/1/1	1	-
1892	RUS 5"(12)/45	+3	2/4/6	2/1/1*	2	Yes
1905	RUS 5"(12)/50	+2	2/4/7	2/1/1*	1	Yes
1927	RUS 4"(10)/45 B-2,B-18	+2	2/5/7	2/1/1*	1	Yes
1911	RUS 4"(10)/60	+2	2/5/7	2/1/1*	1	Yes
1910	RUS 4"(10)/50 Minizini	+2	3/5/8	2/1/1*	1	Yes
1935	RUS 4"(10)/51 B-24	+2	3/7/10	2/1/1*	1	Yes
1937	RUS 4"(10)/56 B-34	+3	3/6/10	2/1/1*	1	Yes

Year	Gun	ROF	Range	Pen	Dam	Plunge?
1938	RUS 4″(10)/56 B-24BM	+2	3/6/10	2/1/1*	1	Yes
1912	SVE 11″(28)/45	+1	4/8/13	7/4/2*	3	Yes
1903	SVE 6″(15)/50	+1	2/4/6	3/1/1*	1	Yes
1912	SVE 6″(15)/50	+1	2/4/6	3/1/1*	1	Yes
1939	SVE 6″(15)/53	+1	4/8/11	3/1/1*	2	Yes
1930	SVE 6″(15)/55	+1	4/7/11	3/1/1*	1	Yes
1924	SVE 5″(12)/50 Mk.5-7	+2	3/6/9	2/1/1*	2	Yes
1885	UK 18″(46)/30 Mk.I	+0	2/3/5	9/4/3	1	-
1915	UK 18″(46)/40 Mk.I	+0	5/11/16	13/7/4*	3	Yes
1920	UK 18″(46)/45 Mk.II	+0	6/11/17	14/7/5*	3	Yes
1922	UK 16″(41)/45 Mk.I	+0	5/11/16	12/6/4*	3	Yes
1939	UK 16″(41)/45 Mk.II-IV	+0	5/10/15	12/6/4*	3	Yes
1912	UK 15″(38)/42 Mk.I	+0	4/9/13	11/6/4*	3	Yes
1935	UK 15″(38)/45 Mk.II	+0	5/10/16	11/6/4*	3	Yes
1910	UK 14″(36)/45 Mk.II,IV,V	+0	3/5/8	10/5/3	2	-
1910	UK 14″(36)/45 Mk.I,III	+0	3/7/10	10/5/3	3	-
1937	UK 14″(36)/45 Mk.VII	+0	5/10/15	10/5/3*	2	Yes
1913	UK 14″(36)/50 Mk.VI	+1	3/7/10	10/5/3*	3	Yes
1880	UK 13″(34)/30 Mk.I-IV	+0	2/3/5	7/4/2	1	-
1909	UK 13″(34)/45 Mk.V	+0	3/6/9	9/5/3	2	-
1909	UK 13″(34)/45 Mk.VI	+0	3/6/10	9/5/3	3	-
1890	UK 12″(31)/25 Mk.III-V	+0	1/3/4	5/3/2	1	-
1890	UK 12″(31)/35 Mk.VIII	+0	2/4/6	7/3/2	1	-
1898	UK 12″(31)/40 Mk.IX	+0	2/4/6	8/4/3	2	-
1904	UK 12″(31)/45 Mk.X	+0	2/4/7	8/4/3	2	-
1910	UK 12″(31)/45 Mk.XIII	+0	3/5/8	8/4/3	2	-
1906	UK 12″(31)/50 Mk.XI,XII	+0	3/6/8	8/4/3	2	-
1884	UK 10″(25)/32 Mk.I-IV	+0	1/3/4	5/2/2	1	-
1901	UK 10″(25)/45 Mk.VI,VII	+1	2/4/6	6/3/2	2	-
1895	UK 9″(23)/40 Mk.VIII	+0	2/3/5	5/2/2	2	-
1895	UK 9″(23)/47 Mk.X	+1	2/4/6	5/3/2	2	-
1901	UK 9″(23)/50 Mk.XI	+1	2/4/6	6/3/2	2	-
1913	UK 9″(23)/51 Mk.XII	+1	4/8/12	6/3/2*	2	Yes
1923	UK 8″(20)/50 Mk.VIII	+1	4/8/12	4/2/1*	2	Yes
1903	UK 7″(19)/45 Mk.I	+1	2/4/6	4/2/1	2	-
1915	UK 7″(19)/45 Mk.VI	+1	2/4/6	4/2/1	2	-
1902	UK 7″(19)/50 Mk.III,IV	+1	2/4/6	4/2/1	2	-
1905	UK 7″(19)/50 Mk.II,V	+1	2/4/6	4/2/1	2	-
1888	UK 6″(15)/40 QF Mk.I-III	+1	1/3/4	2/1/1	2	-
1899	UK 6″(15)/45 Mk.VII,VIII	+1	2/4/6	3/1/1	2	-
1913	UK 6″(15)/45 Mk.XII	+1	3/6/9	3/1/1*	2	Yes
1912	UK 6″(15)/50 Mk.XIII	+1	2/4/5	3/1/1	2	-
1913	UK 6″(15)/50 Mk.XVII	+1	2/4/6	3/1/1	2	-
1913	UK 6″(15)/50 Mk.XVI	+1	2/4/6	3/2/1	2	-
1926	UK 6″(15)/50 Mk.XXII	+2	3/7/10	3/1/1*	2	Yes
1930	UK 6″(15)/50 Mk.XXIII	+2	3/7/10	3/1/1*	2	Yes
1913	UK 5″(14)/50 Mk.I	+2	2/4/6	3/1/1*	2	Yes
1935	UK 5″(13)/50 QF Mk.I	+2	3/6/9	2/1/1*	2	Yes
1921	UK 5″(13)/42 QF Mk.I	+2	2/5/7	2/1/1*	2	Yes

Year	Gun	ROF	Range	Pen	Dam	Plunge?
1932	UK 5"(13)/38 Mk.12	+3	2/5/7	2/1/1*	2	Yes
1885	UK 5"(12)/40 QF Mk.I-IV	+1	1/3/4	1/1/0	1	-
1925	UK 5"(12)/40 QF Mk.VIII,X	+2	2/4/6	2/1/1*	2	Yes
1918	UK 5"(12)/45 Mk.I,II	+1	2/4/6	2/1/1*	1	Yes
1928	UK 5"(12)/45 QF Mk.IX,XII	+2	2/5/7	2/1/1*	1	Yes
1938	UK 5"(12)/50 QF Mk.XI	+2	3/6/8	2/1/1*	1	Yes
1937	UK 4"(11)/45 QF Mk.I,II,IV	+2	3/6/8	2/1/1*	2	Yes
1892	UK 4"(10)/40 QF Mk.XI	+2	2/3/5	1/1/0*	1	Yes
1904	UK 4"(10)/40 BL Mk.VIII,IX	+2	1/3/4	1/1/0	1	-
1904	UK 4"(10)/40 QF Mk.I,III	+2	1/3/4	1/1/0	1	-
1904	UK 4"(10)/40 QF Mk.IV,XII,XXII	+3	1/3/4	1/1/0	1	-
1913	UK 4"(10)/45 BL Mk.IX,X	+2	2/4/5	1/1/0*	1	Yes
1913	UK 4"(10)/45 QF HA Mk.V	+3	2/4/7	1/1/0*	1	Yes
1934	UK 4"(10)/45 QF HA Mk.XVI,XXI	+3	3/5/8	2/1/1*	2	Yes
1904	UK 4"(10)/50 BL Mk.VII,VIII	+2	2/3/5	2/1/1	1	-
1920	USA 18"(46)/47 Mk.A	+0	6/12/17	15/7/5*	3	Yes
1920	USA 18"(46)/48 Mk.1	+0	6/12/19	15/7/5*	3	Yes
1913	USA 16"(41)/45 Mk.1	+0	5/9/14	12/6/4*	3	Yes
1920	USA 16"(41)/45 Mk.5,8	+0	5/9/14	12/6/4*	3	Yes
1936	USA 16"(41)/45 Mk.6	+0	5/10/15	12/6/4*	3	Yes
1916	USA 16"(41)/50 Mk.2,3	+0	6/12/18	13/6/4*	3	Yes
1939	USA 16"(41)/50 Mk.7	+0	6/11/17	13/6/4*	3	Yes
1920	USA 16"(41)/56 Mk.4	+0	7/13/20	14/7/5*	3	Yes
1910	USA 14"(36)/45 Mk.1-3,5	+0	3/6/9	10/5/3	2	-
1928	USA 14"(36)/45 Mk.8-10,12	+0	3/6/9	10/5/3	2	-
1916	USA 14"(36)/50 Mk.4,6	+0	3/6/10	10/5/3	2	-
1930	USA 14"(36)/50 Mk.7,11,B	+0	5/10/15	10/5/3*	2	Yes
1906	USA 13"(33)/35 Mk.1	+0	2/4/6	7/3/2	2	-
1896	USA 12"(31)/35 Mk.1,2	+0	2/3/5	6/3/2	1	-
1899	USA 12"(31)/40 Mk.3,4	+0	3/5/8	8/4/3	1	-
1903	USA 12"(31)/45 Mk.5,6	+1	3/5/8	8/4/3	2	-
1910	USA 12"(31)/50 Mk.7	+1	3/6/10	9/4/3	2	-
1939	USA 12"(31)/50 Mk.8	+1	5/10/15	8/4/3*	3	Yes
1891	USA 10"(25)/30 Mk.1,2	+0	3/5/8	5/2/2	2	-
1899	USA 10"(25)/40 Mk.3	+0	3/5/8	6/3/2	2	-
1883	USA 8"(20)/30 Mk.1,2	+0	2/4/6	3/2/1	1	-
1890	USA 8"(20)/35 Mk.3,4,5	+0	2/4/6	3/2/1	1	-
1900	USA 8"(20)/45 Mk.6	+0	3/6/9	4/2/1	1	-
1922	USA 8"(20)/55 Mk.9-11,13,14	+1	4/8/13	5/2/2*	2	Yes
1933	USA 8"(20)/55 Mk.12,15	+1	4/8/12	5/2/2*	2	Yes
1900	USA 7"(18)/44 Mk.1	+1	2/4/7	3/2/1	2	-
1883	USA 6"(15)/30 Mk.1-4,7	+2	1/2/4	2/1/1	2	-
1933	USA 6"(15)/45 Mk.17	+2	3/5/8	3/1/1	2	-
1932	USA 6"(15)/47 Mk.16	+2	3/7/10	3/1/1*	2	Yes
1898	USA 6"(15)/50 Mk.5	+2	2/5/7	2/1/1*	2	Yes
1898	USA 6"(15)/50 Mk.6,8	+2	2/4/6	3/1/1	2	-
1920	USA 6"(15)/53 Mk.12,14,15,18	+2	3/7/10	3/2/1*	2	Yes
1921	USA 5"(13)/25 Mk.10	+3	2/4/6	2/1/1*	2	Yes
1885	USA 5"(13)/31 Mk.1	+1	2/4/6	2/1/1*	1	Yes

Year	Gun	ROF	Range	Pen	Dam	Plunge?
1932	USA 5"(13)/38 Mk.12	+3	2/4/7	2/1/1*	2	Yes
1895	USA 5"(13)/40 Mk.2-4	+1	2/4/6	2/1/1*	1	Yes
1900	USA 5"(13)/50 Mk.5,6	+2	3/5/8	2/1/1*	1	Yes
1912	USA 5"(13)/51 Mk.7-9,14,15	+2	2/4/6	2/1/1	1	-
1939	USA 5"(13)/54 Mk.16	+3	3/7/10	2/1/1*	2	Yes
1892	USA 4"(10)/40 Mk.1,3-6	+2	2/3/5	1/1/0*	1	Yes
1892	USA 4"(10)/40 Mk.1-6	+2	2/3/5	1/1/0*	1	Yes
1898	USA 4"(10)/40 Mk.7-10	+2	2/4/6	2/1/1	1	-
1910	USA 4"(10)/50 Mk.7,9,10	+2	2/4/6	2/1/1	1	-

TORPEDO DATA

Year	Torpedo	Surf	Sub	Air	Rng	Dam
1890	DEU 14″(35) C35/91	Yes	Yes	-	0	2
1890	DEU 18″(45) C45/91 Br	Yes	-	-	0	3
1890	DEU 18″(45) C45/91 S	Yes	-	-	1	5
1903	DEU 18″(45) C/03	Yes	-	-	2	4
1903	DEU 18″(45) C/03D	Yes	-	-	2	4
1906	DEU 18″(45) C/06	-	Yes	-	2	4
1906	DEU 18″(45) C/06D	-	Yes	-	3	4
1907	DEU 18″(45) C/07	Yes	-	Yes	1	4
1916	DEU 18″(45) G/250	Yes	Yes	-	3	5
1935	DEU 18″(45) F5	-	-	Yes	1	5
1935	DEU 18″(45) F5b	-	-	Yes	3	5
1908	DEU 20″(50) G/06	Yes	Yes	-	3	4
1908	DEU 20″(50) G/06D	Yes	Yes	-	5	4
1910	DEU 20″(50) G7	Yes	-	-	5	5
1915	DEU 20″(50) G7AV	Yes	Yes	-	3	4
1930	DEU 21″(53) G7a T1	Yes	Yes	-	8	6
1935	DEU 21″(53) G7e T2/T3	-	Yes	-	3	5
1912	DEU 24″(60) H8	Yes	-	-	8	5
1887	FRA 14″(36)	Yes	-	-	0	3
1926	FRA 16″(40)	Yes	Yes	-	2	4
1926	FRA 16″(40)	Yes	Yes	Yes	2	4
1892	FRA 18″(45)	Yes	-	-	0	3
1904	FRA 18″(45)	Yes	-	-	1	3
1906	FRA 18″(45)	Yes	Yes	-	1	3
1909	FRA 18″(45)	Yes	Yes	-	2	3
1912	FRA 18″(45)	Yes	-	-	4	4
1918	FRA 18″(45)	Yes	-	-	2	4
1919	FRA 22″(55) 19D	Yes	-	-	8	5
1919	FRA 22″(55) 19V	Yes	-	-	2	5
1923	FRA 22″(55)	Yes	-	-	7	6
1924	FRA 22″(55)	-	Yes	-	4	6
?	ITA 18″(45) W 5.75	-	Yes	-	4	5
?	ITA 18″(45) Si 5.36	Yes	-	-	2	5
?	ITA 18″(45) W 5.25	-	-	Yes	2	5
?	ITA 18″(45) F 5.46	-	-	Yes	2	5
?	ITA 20″(50) W 2.6	-	-	Yes	2	5
1935	ITA 21″(53) 7.2 V	-	Yes	-	6	5
1935	ITA 21″(53) 7.2 F	-	Yes	-	5	5
1935	ITA 21″(53) 6.5	-	Yes	-	6	5
1935	ITA 21″(53) 6.72	-	Yes	-	6	5
1935	ITA 21″(53) Si 7.2 I	-	Yes	-	4	5
?	ITA 21″(53) Si 7.2 M	Yes	-	-	6	5
1899	JAP 14″(36) Type 32	Yes	-	-	1	3
1899	JAP 18″(45) Type 32	Yes	-	-	2	3
1904	JAP 18″(45) Type 37	Yes	-	-	2	4
1905	JAP 18″(45) Type 38 No.1	Yes	-	-	2	4
1905	JAP 18″(45) Type 38 No.2	Yes	-	-	2	3

Year	Torpedo	Surf	Sub	Air	Rng	Dam
1909	JAP 18″(45) Type 42,43	Yes	Yes	-	3	3
1910	JAP 18″(45) Type 44	Yes	Yes	-	4	4
1931	JAP 18″(45) Type 91	-	-	Yes	1	4
1937	JAP 18″(45) Type 97	-	Yes	-	3	6
1910	JAP 21″(53) Type 43	Yes	-	-	4	4
1911	JAP 21″(53) Type 44	Yes	-	-	5	4
1917	JAP 21″(53) Type 6	Yes	Yes	-	8	5
1929	JAP 21″(53) Type 89	-	Yes	-	5	6
1932	JAP 21″(53) Type 92	-	Yes	-	4	6
1935	JAP 21″(53) Type 95	-	Yes	-	6	6
1919	JAP 24″(61) Type 8	Yes	-	-	11	6
1929	JAP 24″(61) Type 90	Yes	-	-	8	6
1933	JAP 24″(61) Type 93	Yes	-	-	22	7
1890	OST 14″(36) Flume	Yes	Yes	-	0	2
1905	OST 18″(45) A90	-	Yes	-	1	3
1906	OST 18″(45) A95	-	Yes	-	1	3
1911	OST 18″(45) A100	Yes	-	-	1	4
1912	OST 18″(45) A110	Yes	-	-	3	4
1913	OST 18″(45) A145	-	Yes	-	2	4
1914	OST 18″(45) A115	Yes	-	-	2	4
1918	OST 18″(45) A110a	-	-	Yes	1	4
1914	OST 21″(53) A180	Yes	Yes	-	4	4
1916	OST 21″(53) A180-bis	Yes	-	-	5	4
1876	RUS 15″(38) Whitehead	Yes	-	-	0	2
1898	RUS 15″(38) Type L	Yes	-	-	0	3
1904	RUS 18″(45)	Yes	-	-	0	3
1910	RUS 18″(45) 45-12	Yes	Yes	-	3	4
1936	RUS 18″(45) 45-36	Yes	-	-	3	5
1939	RUS 18″(45) 45-36A	-	-	Yes	2	5
1907	RUS 18″(46)	Yes	-	-	1	3
1910	RUS 18″(46)	Yes	Yes	-	1	3
1912	RUS 18″(46)	Yes	-	-	3	4
1917	RUS 21″(53)	Yes	-	-	5	5
1927	RUS 21″(53) 53-27	Yes	Yes	-	2	5
1932	RUS 21″(53) 53-36	Yes	Yes	-	4	6
1936	RUS 21″(53) 53-38	Yes	Yes	-	5	6
1939	RUS 21″(53) 53-38U	Yes	Yes	-	5	6
1939	RUS 21″(53) 53-39	Yes	Yes	-	5	6
1939	RUS 21″(53) ET-80	-	Yes	-	2	6
1900	UK 14″(36) Mk.x	Yes	-	Yes	0	2
1903	UK 14″(36) Mk.xI	Yes	-	-	1	2
1935	UK 18″(45) Mk.xII	-	-	Yes	2	4
1892	UK 18″(46) Mk.II	Yes	-	-	1	3
1894	UK 18″(46) Mk.III,IV	Yes	-	-	1	3
1897	UK 18″(46) Mk.V	Yes	-	-	2	3
1907	UK 18″(46) Mk.VI	Yes	Yes	-	3	4
1909	UK 18″(46) Weymouth Mk.I	Yes	-	-	2	3
1909	UK 18″(46) Mk.VII	Yes	-	-	3	4
1913	UK 18″(46) Mk.VIII	-	Yes	Yes	2	4

Year	Torpedo	Surf	Sub	Air	Rng	Dam
1917	UK 18"(46) Mk.Ix	-	-	Yes	1	3
1934	UK 18"(46) Mk.xI	-	-	Yes	2	5
1909	UK 21"(53) Mk.I	Yes	-	-	3	4
1910	UK 21"(53) Mk.II	Yes	Yes	-	4	5
1912	UK 21"(53) Mk.IV	Yes	-	-	7	5
1914	UK 21"(53) Weymouth Mk.II	Yes	-	-	5	4
1914	UK 21"(53) Mk.II***	Yes	-	-	5	5
1915	UK 21"(53) Weymouth Mk.III	Yes	-	-	3	4
1916	UK 21"(53) Mk.IV	Yes	-	-	5	5
1917	UK 21"(53) Mk.V	Yes	-	-	5	5
1920	UK 21"(53) Mk.VII	Yes	-	-	3	6
1925	UK 21"(53) Mk.VIII	Yes	Yes	-	3	6
1928	UK 21"(53) Mk.IX	Yes	-	-	7	6
1939	UK 21"(53) Mk.X	Yes	Yes	-	6	6
1923	UK 25"(62) Mk.I	Yes	-	-	10	6
1889	USA 14"(36) Howell	Yes	-	-	0	2
1888	USA 18"(45) Mk.1	Yes	-	-	0	2
1889	USA 18"(45) Mk.1B	Yes	-	-	0	3
1895	USA 18"(45) Mk.2	Yes	-	-	0	2
1896	USA 18"(45) Mk.2C	Yes	-	-	1	2
1898	USA 18"(45) Mk.3A	Yes	-	-	0	2
1906	USA 18"(45) Mk.4	-	Yes	-	2	3
1906	USA 18"(45) Mk.5	Yes	-	-	2	3
1908	USA 18"(45) Mk.6	Yes	-	-	1	3
1910	USA 18"(45) Mk.7	-	Yes	Yes	3	4
1900	USA 21"(53) Mk.1	Yes	-	-	2	3
1904	USA 21"(53) Mk.2	Yes	-	-	2	3
1905	USA 21"(53) Mk.3	Yes	-	-	2	3
1910	USA 21"(53) Mk.8	Yes	-	-	8	5
1912	USA 21"(53) Mk.9	Yes	-	-	3	3
1917	USA 21"(53) Mk.10	-	Yes	-	2	5
1924	USA 21"(53) Mk.11	Yes	-	-	7	5
1928	USA 21"(53) Mk.12	Yes	-	-	7	5
1930	USA 21"(53) Mk.14	-	Yes	-	4	5
1934	USA 21"(53) Mk.15	Yes	-	-	7	6
1925	USA 22"(57) Mk.13	-	-	Yes	3	5

AEROPLANE DATA

Aeroplane	Country	Year	Hits	Spd	Alt	Attack	Bombs	Fuel	Torpedoes/Notes
AEG C.IV	DEU	1916	1	14	3	+3	2(3d)	19	
AEG G.IV	DEU	1917	4	15	2	+1	2(4d)	19	
AGO C.II	DEU	1915	2	12	2	+1	-	20	
Albatros C.I	DEU	1915	1	13	2	+1	-	11	
Albatros C.III	DEU	1916	2	12	2	+2	5(2d)	19	
Albatros C.V	DEU	1916	2	15	3	+2	5(2d)	16	
Albatros C.VII	DEU	1916	2	15	3	+2	-	16	
Albatros C.x	DEU	1917	2	16	3	+3	-	16	
Albatros C.xII	DEU	1918	2	16	3	+3	-	16	
Albatros D.I	DEU	1916	1	18	3	+3	-	7	
Albatros D.II	DEU	1916	1	16	3	+3	-	7	
Albatros D.III	DEU	1917	1	16	3	+4	-	10	
Albatros D.V	DEU	1917	1	18	3	+4	-	14	
Albatros D.Va	DEU	1917	1	17	3	+4	-	10	
Aviatik C.I	DEU	1915	1	13	2	+2	1(3d)	17	
DFW C.V	DEU	1916	2	14	3	+3	5(2d)	17	
Fokker D.II	DEU	1916	1	15	3	+4	-	7	
Fokker D.VI	DEU	1917	1	18	3	+5	-	7	
Fokker D.VII	DEU	1918	1	18	3	+4	-	10	
Fokker D.VIII	DEU	1918	1	17	3	+6	-	7	
Fokker Dr.I	DEU	1917	1	15	3	+5	-	7	
Fokker E.I	DEU	1915	1	12	2	+2	-	7	
Fokker E.II	DEU	1915	1	12	2	+3	-	7	
Fokker E.III	DEU	1915	1	13	2	+4	-	10	
Fokker E.IV	DEU	1915	1	15	2	+6	-	7	
Gotha G.III	DEU	1916	4	13	3	+1	14(1d)	18	
Gotha G.IV	DEU	1916	4	13	4	+1	5(4d)	29	
Gotha G.V	DEU	1917	4	13	4	+2	5(4d)	28	
Gotha Taube LE-3	DEU	1914	1	9	2	+1	-	19	
Gotha WD.14	DEU	1916	4	12	2	+1	-	38	DEU 18"(45) C/07
Halberstadt C.II	DEU	1917	2	15	3	+2	1(3d)	14	
Halberstadt C.V	DEU	1918	2	15	3	+3	-	17	
Halberstadt CL.II	DEU	1917	1	15	3	+3	-	14	
Halberstadt D.II	DEU	1916	1	13	2	+2	-	7	
Halberstadt D.II	DEU	1916	1	13	3	+2	-	7	
Hannover CL.III	DEU	1918	1	15	4	+2	-	14	
Hansa-Brandenburg KDW	DEU	1916	1	15	2	+1	-	14	
Hansa-Brandenburg NW	DEU	1916	2	8	2	+1	10(1d)	19	
Junkers CL.I	DEU	1918	1	15	3	+6	-	10	
Junkers D.I	DEU	1918	1	17	3	+5	-	7	
Junkers J.I	DEU	1917	2	14	2	+1	-	10	
LVG C.II	DEU	1915	2	12	3	+2	1(3d)	19	
Pfalz D.III	DEU	1917	1	15	3	+3	-	10	
Pfalz D.xII	DEU	1918	1	15	3	+4	-	12	
Pfalz Dr.I	DEU	1917	1	18	3	+6	-	7	

Aeroplane	Country	Year	Hits	Spd	Alt	Attack	Bombs	Fuel	Torpedoes/Notes
Roland D.II	DEU	1916	1	15	3	+5	-	10	
Roland D.VIb	DEU	1918	1	17	3	+5	-	10	
Rumpler 6B.I	DEU	1916	2	14	3	+1	-	19	
Rumpler C.I	DEU	1915	2	14	3	+2	5(2d)	19	
Rumpler C.IV	DEU	1917	2	11	4	+2	-	17	
Siemens-Schuckert D.III	DEU	1917	1	16	4	+5	-	10	
Siemens-Schuckert D.IV	DEU	1918	1	17	4	+5	-	10	
Siemens-Schuckert R.I	DEU	1915	5	12	2	+1	6(3d)	19	
Zeppelin Staaken R.VI	DEU	1917	9	12	2	+2	8(5d)	29	
Borel-Odier BO-T	FRA	1916	3	11	1	+3	-	24	FRA 16"(40)
Breguet A.G.4	FRA	1914	2	9	1	+1	-	0	
Breguet BR.14 A2	FRA	1917	2	16	3	+3	6(3d)	14	
Breguet BR.14 B2	FRA	1917	2	16	3	+4	32(2d)	14	
Breguet Br.M5	FRA	1915	2	13	2	+2	6(3d)	24	
Caudron G.4	FRA	1915	2	12	2	+2	1(4d)	17	
Caudron R.11	FRA	1918	2	17	3	+8	1(4d)	14	
Donnet-Denhaut D.D.2	FRA	1917	2	14	2	+1	2(3d)	17	
Donnet-Denhaut D.D.8	FRA	1918	2	13	2	+2	2(3d)	22	
Donnet-Denhaut D.D.9	FRA	1918	2	13	2	+4	2(2d)	12	
Dorand A.R.1	FRA	1917	2	14	3	+2	4(2d)	14	
FBA Type B	FRA	1915	1	10	2	+2	2(3d)	19	1 Light Gun
FBA Type C	FRA	1915	1	10	2	+2	-	13	
Hanriot HD.1	FRA	1916	1	17	3	+3	-	12	
Hanriot HD.2	FRA	1917	1	16	3	+5	-	12	
Henri Farman F.20	FRA	1914	1	9	2	+2	-	16	
Henri Farman F.40H	FRA	1915	1	12	2	+2	6(1d)	12	
Levy-Besson 'Alerte'	FRA	1917	2	17	2	+2	2(3d)	19	
Maurice Farman S.11	FRA	1914	1	11	2	+1	-	12	
Morane-Saulnier A.1	FRA	1917	1	20	4	+6	-	12	
Morane-Saulnier H	FRA	1913	1	12	1	+3	-	14	
Morane-Saulnier L	FRA	1913	1	10	2	+2	-	19	
Morane-Saulnier N	FRA	1914	1	13	2	+3	-	7	
Nieuport 10	FRA	1915	1	13	3	+2	-	10	
Nieuport 11	FRA	1915	1	14	3	+3	-	10	
Nieuport 12	FRA	1915	1	14	3	+1	-	10	
Nieuport 17	FRA	1916	1	16	3	+4	-	10	
Nieuport 27	FRA	1917	1	17	3	+6	-	10	
Nieuport 28	FRA	1917	1	18	3	+5	-	10	
Nieuport 29	FRA	1918	1	22	4	+5	-	10	
Paul Schmitt 7	FRA	1917	2	12	2	+2	3(3d)	24	
Salmson 2	FRA	1918	2	17	3	+4	-	10	
SPAD A.2	FRA	1915	1	10	2	+1	-	14	
SPAD S.11	FRA	1916	1	16	4	+6	-	11	
SPAD S.12	FRA	1916	1	18	4	+3	-	8	
SPAD S.13	FRA	1917	1	21	4	+6	4(2d)	10	
SPAD S.14	FRA	1917	1	18	3	+4	-	12	1 Light Gun
SPAD S.7	FRA	1916	1	17	3	+2	2(1d)	12	
Tellier T.3	FRA	1916	2	12	2	+1	2(2d)	22	
Tellier T.4	FRA	1918	2	13	2	+1	4(3d)	24	

Aeroplane	Country	Year	Hits	Spd	Alt	Attack	Bombs	Fuel	Torpedoes/Notes
Tellier T.6	FRA	1918	2	11	2	+1	-	24	1 Light Gun
Voisin 3	FRA	1914	1	10	3	+2	4(2d)	18	
Voisin 5	FRA	1915	1	11	2	+1	3(2d)	14	
Voisin 8	FRA	1916	2	12	2	+2	6(2d)	19	
Ansaldo A.1 Balilla	ITA	1918	1	20	3	+4	-	7	
Ansaldo S.V.A5	ITA	1918	1	21	4	+4	-	29	
Caproni Ca.3	ITA	1915	4	12	2	+4	4(4d)	16	
Caproni Ca.30	ITA	1917	4	12	2	+2	6(3d)	17	
Caproni Ca.32	ITA	1915	3	11	0	+1	8(4d)	23	
Caproni Ca.4	ITA	1918	6	11	2	+3	7(5d)	17	
Caproni Ca.40	ITA	1918	6	11	2	+2	5(5d)	29	
Caproni Ca.42	ITA	1918	6	11	2	+2	6(5d)	34	
Caproni Ca.46	ITA	1918	5	14	2	+1	6(4d)	19	
Fiat R.2	ITA	1918	2	16	3	+3	-	14	
Macchi L.1	ITA	1915	2	10	2	+1	4(2d)	24	
Macchi L.2	ITA	1916	2	12	2	+1	4(2d)	22	
Macchi L.3/M.3	ITA	1916	2	12	3	+3	4(2d)	19	
Macchi M.5	ITA	1917	1	16	3	+4	-	22	
Macchi M.7	ITA	1918	1	19	4	+4	-	14	
Macchi M.8	ITA	1917	2	15	3	+3	-	17	1 Light Gun
Macchi M.9	ITA	1918	2	17	3	+1	-	19	4 Depth Charges
Pomilio PE	ITA	1918	2	18	3	+3	-	17	
SAML S.2	ITA	1917	2	15	3	+4	4(1d)	17	
SIA 7B.1	ITA	1917	2	17	4	+3	3(2d)	19	
Aviatik B.I	OST	1914	1	9	1	+1	2(1d)	19	
Aviatik B.II	OST	1915	1	10	1	+2	2(1d)	19	
Aviatik D.I	OST	1917	1	17	3	+4	-	12	
Hansa-Brandenburg C.I BA169	OST	1917	2	14	3	+1	10(1d)	19	
Hansa-Brandenburg C.I BA23	OST	1916	2	12	3	+1	6(1d)	14	
Hansa-Brandenburg CC	OST	1916	2	16	2	+1	-	17	
Hansa-Brandenburg D.I	OST	1916	1	17	3	+2	-	12	
Hansa-Brandenburg W12	OST	1917	2	15	3	+2	-	17	
Hansa-Brandenburg W18	OST	1918	1	16	2	+3	-	12	
Hansa-Brandenburg W29	OST	1918	2	16	3	+3	-	19	
Lloyd C.II	OST	1915	2	12	2	+1	-	12	
Lohner C.I	OST	1916	2	12	2	+1	-	14	
Lohner Type L	OST	1915	2	9	1	+1	6(2d)	34	
Oeffag Albatros D.III	OST	1917	1	18	3	+4	-	10	
Phonix C.I	OST	1918	1	16	3	+4	1(3d)	17	
Phonix D.I	OST	1917	1	16	3	+6	-	10	
Phonix D.II	OST	1918	2	18	4	+1	-	12	
Ufag C.I	OST	1918	1	17	3	+6	-	14	
Anadwa Salmson	RUS	1917	2	13	2	+3	6(4d)	14	
Anadwa VKh	RUS	1916	2	13	2	+1	6(4d)	14	
Anatra-DS	RUS	1916	1	14	2	+2	-	17	
Anatra-DSS	RUS	1917	1	14	2	+3	-	14	
Khioni-4	RUS	1921	2	13	2	+1	4(5d)	14	

Aeroplane	Country	Year	Hits	Spd	Alt	Attack	Bombs	Fuel	Torpedoes/Notes
Lebed 12	RUS	1916	1	12	2	+1	4(2d)	14	
Sikorsky Ilya Mourometz E	RUS	1917	6	12	2	+6	8(4d)	24	
Sikorsky Ilya Mourometz V	RUS	1915	4	11	2	+6	5(4d)	24	
Sikorsky S.16	RUS	1914	1	11	2	+1	-	10	
Airco D.H.2	UK	1916	1	14	2	+2	-	14	
Airco D.H.4	UK	1917	2	21	4	+5	2(4d)	17	
Airco D.H.5	UK	1917	1	15	3	+2	-	13	
Airco D.H.6	UK	1917	1	10	2	(+1)	2(2d)	13	
Airco D.H.9a	UK	1918	2	18	3	+3	3(4d)	22	
Armstrong-Whitworth F.K.10	UK	1916	1	14	2	+3	1(2d)	12	
Armstrong-Whitworth F.K.8	UK	1917	2	14	2	+2	1(3d)	14	
Austin-Ball A.F.B.1	UK	1918	1	20	4	+4	-	11	
Avro 504	UK	1913	1	14	2	+2	1(2d)	22	
Beardmore W.B.III	UK	1916	1	13	2	+2	-	13	
Blackburn Kangaroo	UK	1918	4	15	2	+2	4(4d)	38	
Blackburn Triplane	UK	1917	1	13	2	+2	-	14	
Bristol F.2b	UK	1917	2	18	4	+5	1(4d)	12	
Bristol M.1c	UK	1917	1	19	3	+3	-	8	
Bristol Scout D	UK	1915	1	15	3	+2	-	10	
De Havilland D.H.2	UK	1915	1	14	2	+2	-	13	
Fairey Campania F.22	UK	1917	3	12	2	+1	2(2d)	22	
Fairey III.D	UK	1918	3	13	3	+1	4(2d)	22	
Felixstowe F.3	UK	1918	4	14	2	+4	4(4d)	29	
Felixstowe F.5	UK	1919	4	13	2	+4	4(4d)	34	
Handely Page O/400	UK	1918	6	14	1	+2	3(5d)	38	
Handley Page O/100	UK	1916	6	12	1	+2	4(5d)	38	
Handley Page V/1500	UK	1918	9	14	2	+2	7(7d)	65	
Martinsyde F.4 Buzzard	UK	1918	1	19	4	+5	-	14	
Martinsyde G.100 Elephant	UK	1916	1	15	2	+3	1(4d)	22	
RAF B.E.12	UK	1916	1	15	2	+2	-	14	
RAF B.E.2	UK	1912	1	11	2	+2	-	14	
RAF F.E.2	UK	1915	2	14	2	+3	2(3d)	14	
RAF F.E.8	UK	1916	1	14	2	+2	-	12	
RAF R.E.7	UK	1915	2	12	1	+1	3(3d)	29	
RAF R.E.8	UK	1916	1	15	2	+3	1(4d)	22	
RAF S.E.5	UK	1917	1	18	3	+4	4(1d)	12	
Short Admiralty Type 184	UK	1915	3	11	2	+1	4(3d)	22	UK 18″(46) Mk.Ix
Short Admiralty Type 320	UK	1917	3	10	1	+1	-	29	UK 18″(46) Mk.Ix
Short Bomber	UK	1916	4	11	2	+0	4(4d)	29	
Sopwith 1-1/2 Strutter	UK	1916	1	15	3	+3	2(2d)	19	
Sopwith 2F.1 Camel	UK	1917	1	17	3	+4	4(1d)	12	
Sopwith 7F.1 Snipe	UK	1918	1	18	3	+5	-	14	

Aeroplane	Country	Year	Hits	Spd	Alt	Attack	Bombs	Fuel	Torpedoes/Notes
Sopwith Baby	UK	1917	1	15	2	+2	2(2d)	11	
Sopwith Bulldog	UK	1917	1	16	3	+6	-	10	
Sopwith Dolphin	UK	1918	1	19	4	+5	-	10	
Sopwith F.1 Camel	UK	1917	1	18	3	+5	-	12	
Sopwith Pup	UK	1916	1	15	3	+2	-	14	
Sopwith Schneider	UK	1915	1	12	1	+2	1(2d)	11	
Sopwith T.1 Cuckoo	UK	1918	2	15	3	(+1)	-	19	UK 18″(46) Mk.Ix
Sopwith T.F.2 Salamander	UK	1918	2	18	2	+2	4(1d)	7	
Sopwith Tabloid	UK	1913	1	14	1	(+1)	2(2d)	17	
Sopwith Triplane	UK	1916	1	17	3	+3	-	12	
Supermarine Spitfire Mk.IA	UK	1938	3	52	6	+10	-	7	
Vickers F.B.12	UK	1916	1	13	2	+3	-	16	
Vickers F.B.19	UK	1916	1	16	3	+2	-	16	
Vickers F.B.5	UK	1915	1	10	2	+2	-	17	
Vickers Vimy	UK	1918	5	15	2	+1	4(5d)	42	
Curtiss H.12	USA	1916	4	12	2	+3	2(4d)	29	
Curtiss H.16	USA	1918	5	14	2	+5	4(4d)	19	
Curtiss HS-2L	USA	1918	3	11	0	+1	2(4d)	38	
Fairey Campania F.17	USA	1917	3	12	1	+1	-	14	
Felixstowe F.2A	USA	1917	5	14	2	+4	2(5d)	29	
Packard Le Pere-Lusac 11	USA	1918	2	19	3	+7	-	12	
Thomas Morse S.4c	USA	1917	1	14	3	+2	-	12	
Fairey Swordfish Mk.II	UK	1936	4	20	2	+1		24	UK 18″(46) Mk.xI

ZEPPELIN DATA

Zeppelin	Country	Year	Hits	Speed	Alt	Attack	Bombs	Notes
L10	DEU	1915	9	10	2	+2	6(5d)	
L20	DEU	1915	10	10	2	+2	9(5d)	
L30	DEU	1916	11	11	2	+3	10(5d)	
L4	DEU	1914	10	9	2	+2	4(4d)	
L42	DEU	1917	10	11	3	+3	11(5d)	
L44	DEU	1917	10	11	3	+3	11(5d)	
L48	DEU	1917	10	12	3	+3	11(5d)	
L53	DEU	1917	8	12	4	+3	12(5d)	
L57	DEU	1917	9	11	4	+3	12(5d)	
L70	DEU	1918	9	14	4	+3	12(5d)	
L9	DEU	1915	9	9	2	+2	4(4d)	
C Star	UK	1918	2	10	2	+1	5(4d)	
Coastal	UK	1916	2	9	1	+1	4(3d)	
No.23	UK	1917	10	9	2	+2	(0d)	Carries 2 Sopwith F.1 Camels
North Sea	UK	1917	2	10	2	+1	2(6d)	
SS Airship/B.E.2c	UK	1915	1	9	2	+0	2(2d)	
SS Airship/Farman	UK	?	1	7	2	+0	2(2d)	
SS Airship/Whitworth	UK	?	1	8	2	+0	2(2d)	
SSP Airship	UK	1917	1	10	2	+0	2(2d)	
SST Airship	UK	1918	1	10	2	+1	4(3d)	
SSZ Airship	UK	1917	1	9	2	+0	2(2d)	
B	USA	1917	1	8	2	+0	4(4d)	
C	USA	1918	1	10	2	(+0)	4(2d)	

INDEX

INDEX OF SHIP DATA CARDS

REFERENCES

BOOKS

Bennett, Geoffrey. *Naval Battles of the First World War* (London: B. T. Batsford Ltd., 1968).

Botting, Douglas. *The Seafarers: The U-Boats* (Alexandria, VA: Time-Life Books, 1979).

Brown, David. *Warship Losses of World War Two* (London: Arms & Armour Press, 1990).

Bywater, Hector C. *The Great Pacific War: A History of the American-Japanese Campaign, 1931-1933* (New York: Houghton Mifflin Co., 1925).

_____. *Sea-Power in the Pacific* (New York: Houghton Mifflin Co., 1921).

Cambell, N. J. M., and John Campbell. *Jutland: An Analysis of the Fighting* (Annapolis, MD: Naval Institute Press, 1986).

Gardiner, Robert, ed. *Conway's All the World's Fighting Ships 1860-1905* (London: Conway Maritime Press, 1979).

_____. *Conway's All the World's Fighting Ships 1906-1921* (London: Conway Maritime Press, 1985).

_____. *Conway's All the World's Fighting Ships 1922-1946* (Annapolis, MD: Naval Institute Press, 1980).

Costello, John, and Terry Hughes. *Jutland, 1916* (London: Weidenfeld & Nicolson, 1976).

Denlinger, Sutherland, and Charles B. Gary. *War in the Pacific: A Study of Navies, Peoples, and Battle Problems* (New York: Robert M. McBride & Co., 1936).

Dittmar, Frederick J., and J. J. Colledge. *British Warships, 1914-1919* (London: Allan, 1972).

Gordon, Andrew, and John Woodward. *The Rules of the Game: Jutland and British Naval Command* (Annapolis, MD: Naval Institute Press, 1996).

Hough, Richard A. *A History of the Modern Battleship Dreadnought* (New York: Macmillan, 1975).

Howarth, David A. *The Seafarers: The Dreadnoughts* (Alexandria, VA: Time-Life Books, 1979).

Jentschura, Hans George, et. al. *Warships of the Imperial Japanese Navy: 1869-1945* (Annapolis, MD: Naval Institute Press, 1977).

Massie, Robert K. *Dreadnought: Britain, Germany, and the Coming of the Great War* (New York: Random House, 1991).

McCurtie, Francis E. (ed.). *Jane's Fighting Ships of World War II* (New York: Gramercy, 1994).

Moore, John Evelyn (ed.). *Jane's Fighting Ships of World War I* (New York: Random House, Ltd., 1993).

Nekrasov, George. *North of Gallipoli: The Black Sea Fleet at War, 1914-1917* (New York: Columbia University Press, 1992).

Padfield, Peter. *Guns at Sea* (London: H. Evelyn, 1973).

Parkes, Oscar. *British Battleships: Warrior 1860 to Vanguard 1950* (Hamden, CN: Archon Books, 1972).

Pleshakov, Konstantin. *The Tsar's Last Armada: The Epic Voyage to the Battle of Tsushima* (New York: Basic Books, 2002).

Silverstone, Paul H. *U. S. Warships of World War One* (Garden City, NY: Doubleday, 1970).

Tarrant, V. E. *Jutland: The German Perspective* (Annapolis, MD: Naval Institute Press, 1995).

Yates, Keith. *Graf Spee's Raiders: Challenge to the Royal Navy* (Annapolis, MD: Naval Institute Press, 1995).

INTERNET

Cashmore, Andrew. *Warships on the Web*. June, 2003. <web.ukonline.co.uk/aj.cashmore/>.

Derdall, Guy. *Battleships, Carriers & All Other Warships.* Warships1. September, 2003. <www.warships1.com>.

Fletcher, Michael. *Early Aircraft Drawings*. October, 2003. <members.rogers.com/ww1airplanedrawings/>.

Gustin, Emmanuel. *Military Aircraft Database*. April, 2001. <www.csd.uwo.ca/~pettypi/elevon/gustin_military/db/>.

Luscombe, Stephen. *The British Empire*. October, 2003. <www.britishempire.co.uk/empire.htm>.

Milford, Darren. *World War 1 Naval Combat*. October, 2003. <www.geocities.com/darrenmilford/>.

Schleihauf, William. *World War One – The Maritime War*. July, 2003. <www.gwpda.org/naval/n0000000.htm>.

Simkin, John. *The First World War: War in the Air*. Sparticus Educational. March, 2004. <www.spartacus.schoolnet.co.uk/FWWair.htm>.

Smith, Gordon. *Navies of World War One*. Naval-History.net. June, 2003. <www.naval-history.net/NAVAL1914-18.htm>.

Toppan, Andrew C. *Haze Gray & Underway*. October, 2003. <www.hazegray.org>.

Unknown. *The Aerodrome: Aces & Aircraft of World War One*. February, 2004. <www.theaerodrome.com>.

Boucher, W. Ira. *World War One Aviation: An Illustrated History*. July, 1999. <www.wwiaviation.com/toc.shtml>.

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.

Armament	ROF	Rng.	Pen.	Dam.	Quantity		

Damage Track

Hull Hits				
Speed				

Hit Location

1	2	3	4	5	6	7	8	9

Notes

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.

Armament	ROF	Rng.	Pen.	Dam.	Quantity		

Damage Track

Hull Hits				
Speed				

Hit Location

1	2	3	4	5	6	7	8	9

Notes

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.

Armament	ROF	Rng.	Pen.	Dam.	Quantity		

Damage Track

Hull Hits				
Speed				

Hit Location

1	2	3	4	5	6	7	8	9

Notes

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.

Armament	ROF	Rng.	Pen.	Dam.	Quantity		

Damage Track

Hull Hits				
Speed				

Hit Location

1	2	3	4	5	6	7	8	9

Notes

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.

Armament	ROF	Rng.	Pen.	Dam.	Quantity		

Damage Track

Hull Hits				
Speed				

Hit Location

1	2	3	4	5	6	7	8	9

Notes

Hull	Speed	Belt	Ends	Deck	Size	Mod.	C&C	C.R.	A.A.R.

Armament	ROF	Rng.	Pen.	Dam.	Quantity		

Damage Track

Hull Hits				
Speed				

Hit Location

1	2	3	4	5	6	7	8	9

Notes

When I got to the ship's side, there seemed to be quite a fair crowd, and they didn't appear to be very anxious to take to the water. I called out to them, "Come on you chaps, who's coming for a swim?" Someone answered, "She will float for a long time yet," but something, I don't pretend to know what it was, seemed to be urging me to get away, so I clambered over the slimy bilge keel and fell off into the water, followed I should think by about five more men. I struck away from the ship as hard as I could and must have covered nearly fifty yards when there was a big smash, and stopping and looking round, the air seemed to be full of fragments and flying pieces.

A large piece seemed to be right above my head, and acting on impulse, I dipped under to avoid being struck, and stayed under as long as I could, and then came to the top again, and coming behind me I heard a rush of water, which looked very like surf breaking on a beach and I realized it was the suction or backwash from the ship which had just gone. I hardly had time to fill my lungs with air when it was on me. I felt it was no use struggling against it, so I let myself go for a moment or two, then I struck out, but I felt it was a losing game and remarked to myself, "What's the use of you struggling, you're done," and I actually ceased my efforts to reach the top, when a small voice seemed to say, "Dig out."

P.O. Ernest Francis, HMS *Queen Mary*

Grand Fleets is a comprehensive miniatures game of dreadnought-era naval warfare. In addition to rules for everything from ships to aeroplanes, Zeppelins to submarines, the rulebook includes:

- Data cards for over 120 ships, plus guidelines for converting any ship of the period to game values;
- Eight scenarios encompassing conflicts from the Sino-Japanese War of 1894 through the opening salvoes of World War Two, including several variants;
- Fifteen pages of weapon data, covering all major gun and torpedo models in use through 1939, over 200 aeroplanes, and more than 20 airships; and
- Optional rules for flotillas, night-fighting, smokescreens, and more!