# ARMADA

⟅BATTLESCAPES⟆

ARMADA

Designed and Programmed by
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Player's Guide

ARC

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Introduction

The full story of the Spanish Armada is a fascinating piece of history. Starting as a great adventure it ended as a human tragedy on a massive scale. This simulation attempts to capture five days of the Armada's journey, the five days it took for the huge fleet to make its way from south of Plymouth to the Isle of Wight.

The Armada was a very real invasion threat to England, but the clash of politics, religion, intrigue and misunderstanding was also very real. Good accounts of the story have been published by several authors (a list is given in Appendix A), and although it is certainly not necessary to have read one to run this simulation, it would help and is anyway, an eye–opening and good read.

*Armada is the second in Arc **BATTLESCAPES** ™ series: the first was Borodino.*

The Defeat of
the Spanish Armada

In 1588 Spain was the World's superpower. With massive wealth brought across the Atlantic from the Carribean, and an army that was widely regarded as the toughest and most efficient in Europe, few could stand in its way. It was certainly the only power that could contemplate an amphibious invasion of a well populated and modern country, England, over 1000 miles from a home port.

Like all major conflicts, the decision to go ahead followed several years of worsening relations, and events that twisted fate towards a showdown. Spain was a Catholic country, led by King Philip II, and England one of the main Protestant countries, ruled by Queen Elizabeth I. For some time the Catholic powers were hoping that Mary Queen of Scots, a Catholic contender for the English throne, would seize power. But Elizabeth had her killed, a murder which put considerable pressure on King Philip to act.

Also, for the previous few years English raiders, notably Francis Drake, had been plundering Spanish merchant ships, apparently at will. Drake was well known to the Spanish long before the Armada set sail. He was known as the Dragon.

A further thorn in King Philip's side was England's support for the Dutch rebels, fighting against Spanish domination of the Netherlands.

Early in 1588, the decision to go ahead with the invasion was finally made. The plan was first put to the King several years earlier by the Marquis of Santa Cruz, a tough, wily old Admiral, and a veteran of a number of naval victories. One of the most decisive events in the saga of the Armada is that Santa Cruz died (undramatically, of old age) a few months before the invasion fleet set sail.

As the lesser admirals of the day were politically unacceptable as leaders of such a venture, King Philip chose the Duke of Medina Sidonia, a man who had no love of the sea, and said as much to the King. Nevertheless the King had his way, and the Duke set about the gargantuan task of commanding a vast Armada.

The main plan, devised in detail by King Philip (his lack of knowledge of the sea, and sea warfare, did not help the prospects one jot), was to sail the Armada up the English channel and then escort an invasion army across from Flanders, commanded by the Duke of Parma. The Armada was to sail as close to the English coast as it could, possibly to frighten the English and stir up a fifth column of disgruntled English Catholics. Navigation in the sixteenth century also required sailing in sight of a coast, as there was no means of calculating longitude and having sight of land was the only way of knowing exactly where a ship was.

The King did give Medina Sidonia an option; if escorting Parma's army across the channel was impossible, the Duke could try an invasion of the Isle of Wight on his own. The reasons behind this are that the Pope had offered the King one million ducats if Spanish troops set foot on England, and in any case holding the Isle of Wight would put pressure on Queen Elizabeth to give way to other Spanish demands, notably the right of Catholics to practice their faith, and the return of land in the Netherlands to Spain.

Some historians have suggested that the Armada was in fact a bluff, and was to be used as a big bargaining stick against the English. This seems rather unlikely given the enormous resources put into it. Both Napoleon and Hitler claimed their invasion attempts were bluffs when they too failed!

It took around a month to assemble the Armada at Lisbon, and it set sail in mid May. Whatever doubts the informed had, they were lost on the fleet, and the atmosphere of a huge adventure, with success guaranteed by God Himself, prevailed on the fleet of 130 ships.

The Duke of Medina Sidonia had done an admirable job in galvanising the mass of ships and multinational crews into a single body. A storm scattered the fleet, but after reassembling at Corrunna they continued heading towards Cornwall.

The English meanwhile had assembled 105 ships, the bulk of its fleet, in Plymouth. Like King Philip, the English government felt the defence of the realm was too important (and prestigious) a task for a sailor to command, and appointed Lord Howard of Effingham as the commander-in-chief, with Sir Francis Drake demoted to second in command. The core of the English fleet were the Queen's ships, mostly newly built or modernised galleons, but numbering only 19 in Plymouth (with a further squadron, with five galleons, commanded by Lord Seymouth, left off Dover to watch Parma). The rest of the fleet was made up of masses of merchant ships, lightly armed but eager to play their part in the country's defence. And, it must be said, eager to plunder any Spanish treasure that might come their way.

The sailing skill of the English was one of their major strengths, along with the qualities of the new galleons, and the main captains were already well known, Drake across the known world, but there were others. Frobisher, a tough Yorkshireman, was an accomplished adventurer, but he had a bullish temper and was jealous and incensed by Drake.

Hawkins was a skilled captain, but his main contribution was in the design of the warships, he pioneered the move away from floating castles full of soldiers to the concept of a competent sailing warship that would fight mainly at a distance with its guns. Then there were the Fenners, a famous sailing family, and many others who understood the ships they commanded and the ways of the sea.

Despite Howard's lack of sailing skills he was a competent leader, particulary in his persistent and desperate bids to get money, ammunition and food (victuals was the term of the day) out of an unresponsive English government and a parsimonious Queen. He was not obviously jealous of Drake, and effectively took orders from his subordinates on how to fight sea battles.

However, despite all the knowledge of the English captains, the battles that were about to take place were new to the world, and the early English tactics were to prove to be ineffective.

The last massive naval engagement, the Christian defeat of the Turks at Lepanto, had been a galley battle. Galleys fought by ramming, grappling and boarding. Guns were used only as the ships closed in, it was the hand–to–hand fighting that decided the day. This was the essence behind the Spanish tactics, its large warships were to close in on the English, grapple, and then use the powerful Spanish infantry to overwhelm their foe.

English tactics were opposite to the Spanish, its ships were armed with lighter long range artillery, called culverins. As they were very inferior in the numbers of troops on board, the English commanders decided to engage only at long range, hoping to win without making contact.

When the Spanish Armada was sighted off Cornwall, fear and excitement gripped the English. This was it. The rumours and speculation were over, and the fighting was to begin. Beacons were lit along the coast, marking where the Armada had got to. To the onlookers on shore, the Armada was vast, one said the sea seemed to groan under the weight .

The English put to sea on July 30, sighted the Spanish, and cleverly worked to windward of the enemy fleet. Probably the only firm tactic evolved for sailing ships was the value of being upwind of the enemy. This allowed a captain to attack when he wished, but forced the enemy to make slow tacks upwind in order to close in.

When the fleets first sighted each other the next morning (the starting point of our simulation), both were amazed at the other. The Spanish were shocked at the speed of the English galleons and the ability of their crews to handle them. But the English were struck by the sheer size of the Armada, and its ability to maintain such a tight defensive formation.

July 31 saw the first exchange of gunfire. This was largely ineffective but two Spanish ships were disabled. The San Salvador blew up in an explosion that looked suspiciously like sabotage, and the Rosario was so damaged in a collision that it was left behind.

The night of the 31st saw Drake, supposedly leading the English in pursuit through the darkness, slip away and capture the Rosario. A bold move, and the information gained from the captured Spanish was no doubt valuable, but nevertheless was in blatant contravention of his orders. He must have thought that he would get away with it. Frobisher was furious, but Howard, no doubt with a greater problem on his mind, let the matter drop.

The second engagement, intense but to little effect, occured off Portland Bill on August 2. The English might have been worried about a possible invasion around Weymouth. Medina Sidonia, though, had other problems on his mind.

August 3 saw a few reinforcements arrive for the English (two merchant squadrons in this simulation), and a skirmish that saw the English run very short of ammunition. The next day a further running fight took place off the Isle of Wight, again to little effect. The Spanish were failing to board any English ships, but long range artillery seemed to have little effect on the solid wooden hulls.

Medina Sidonia faced an intractable problem off the Isle of Wight. He knew that if he sailed on his ships would be unable to tack back up the Channel to try again, he had failed to crush the English (he hardly had the weapons to do so), and there was no word from Parma. Should he just sail on and hope that Parma's army was ready to set sail? But if he was, surely Parma would have made contact ?

The Duke chose to stick to the King's instructions literally and abandon any hope of invading the Isle of Wight. August 5 saw the Armada sail on for Calais. This is where our simulation departs from history, the option to invade did exist (given an intelligent and liberal interpretation of the King's orders) and this option forms the basis of the game.

From here on Medina Sidonia's situation gets increasingly desperate. The Armada sailed in good order, and without loss, to anchor off Calais. Waiting for news of Parma, the Duke hears that the invasion craft will not be ready for another week. In fact this was probably not true. Parma seems to have been playing some game of his own, possibly hoping the Armada would never get as far as it did, and may not have wished to risk his army being destroyed on such a dangerous cross–channel venture.

Drake himself was to later point out that the combination of complete co-ordination of land and sea forces, high tides and favourable winds necessary for success was simply remote. The plan had been fundamentally flawed from the beginning.

At Calais the Armada was able to take on much needed stores, but as darkness fell, disaster struck. The English fleet, now reinforced with Seymour's squadron, launched eight fireships in a midnight attack. Fireships are simply ships set ablaze, guns loaded, and sailed towards a port or stationary enemy fleet. Although there was some chance of burning some Spanish ships, this did not happen as many Spanish captains cut their anchor cables and drifted or sailed off, more than a few in panic: fireships had a fearsome reputation.

The next day, with the Spanish fleet in some disorder, Howard and Drake saw their chance and attacked. The fight became known as the Battle of Gravelines, and was the fiercest of the whole campaign. The English fleet had discovered the effectiveness of short range fire, but still managed to skillfully avoid grappling contact. Howard, in the only obvious mistake of his command, wasted some time in attacking a floundering Spanish galleass with his whole squadron. But Drake and the other leaders attacked in a full blooded fashion that put one Spanish ship to the bottom, disabled another two, and killed and injured a large number of enemy soldiers and sailors. Lack of ammunition again played its role later on in the battle.

The most desperate moment of all for the Armada occurred later on this day, when there was a danger that the entire fleet would be blown onto (hostile) Flemish shores. A change in wind direction came as a massive relief, the Armada was pushed northward up into the North Sea.

Medina Sidonia had now given up all hope of a successful mission, and sensibly decided the most the King would expect him would be to bring back as much of the Armada intact as possible. The English, desperately short of ammunition and food, followed for some way but eventually turned for port when it was obvious the invasion threat was over.

Although the threat was over, the story of the Armada certainly was not. On both sides, what followed was a massive human disaster.

With very limited maps, short of food, and fighting howling gales, the Spanish attempted to go right round Scotland and Ireland, and make it back to Spain. Many of the Spanish did in the end make it, but in total disorder and with huge losses among the crew through illness and starvation. The ships that did not make it, mostly the merchant ships that were not so tough as the true warships, were not so lucky. About half the Armada was sunk in storms or ran aground off Ireland and Scotland.

Of the crews that did get ashore, many Spaniards were clubbed to death and robbed by the locals, or massacred by the English in Ireland. Perhaps fearful of a successful invasion by accident, knowing that the Spanish greatly outnumbered the English garrison, and in any case knowing the Spanish would treat the English the same way in a similar situation, the garrison commander in Ireland ordered most of the captured Spanish to be massacred. However, it is difficult to imagine that the naked and starving men washed and staggering ashore posed any threat to the armed troops in Ireland.

The bloody end to so many men has deeply embarrassed many English historians who have delved into these lesser known aspects of the defeat of the Spanish Armada. Not all were killed though, some did escape through Scotland, to write further tales of great adventure.

The exact loss of Spanish ships and men has never been precisely agreed, but probably numbers over 60 ships lost with 13,000 men killed. Although King Philip's role in the affair, particularly the unlikely plan, have rightly been condemned, the King was at least reasonable with the survivors. Medina Sidonia got home safely, was not punished, and must have retired gladly out of any active service. Also supplies were ordered up for the starving crews as they arrived home. The main suspicions for the failure were placed on Parma, although nothing much seemed to stick. A stunned Spain, having been told continuously of news of a great victory, slowly learned of a most devastating catastrophe. King Philip was content to put it down to God's will.

Back in England, Howard had huge problems of his own. A little known but great disaster was unfolding before his eyes. Despite having defended their nation so bravely, the English sailors were largely ignored by the Queen and government when they arrived back on land. There was no pay or food for them. A huge number, some estimate as many as 7,000, died of illness or starvation. Howard struggled to organise food for the sailors, even sending some of his own, but he must have been utterly dismayed at the lack of concern from London: a navy that had fought off an Armada at sea was now dying of cold and hunger on the streets of English ports.

Although Spain remained the World's superpower after the defeat of the Armada, and even managed to dispatch three further expeditions against England (all failing, largely through being ill conceived), like many great naval victories (or perhaps, great naval defeats) the effect was largely psychological. Spain was no longer regarded as invincible. The reputation of the English and her navy, and the pride of its countrymen in its sailing fleet, placed England on a course that was to lead it to become the World's dominant power for three centuries. And Drake, he was to be given the credit. He seems to have got away with everything!

Loading Instructions

Armada will run on an Atari ST, IBM PC or compatible (with either CGA or EGA graphics), and the Commodore Amiga. A minimum of 512K is needed, along with a single floppy disk drive, and a colour monitor.

Atari ST

Insert the Armada Program disk and double click on the ARMADA.PRG icon. You will be prompted to insert the Data disk when the program has loaded.

IBM PC

Armada is supplied on both 3.5 and 5.25 inch disks. To run the program, insert the appropriate Armada Program disk and type ARMADA. Users of the 5.25 inch disk version will be prompted to insert the Data disk when the program has loaded.

Amiga

Load the single Armada disk before turning on the machine. The game will then auto boot in the normal way when the machine is switched on. Alternatively, the Armada program may be run from the CLI.

Hard Disk Installation

Although Armada is copy protected, it is possible to install and run the program from a hard disk.

Simply copy all the files from the Armada program and data disks into a folder or sub-directory on the hard disk.

The program can then be run from the hard disk, using the procedures outlined for each machine previously, ensuring, however, that the original program disk is in drive A.

Playing Instructions

After loading the program and data disk according to the different instructions for each computer system, set up the game by answering the questions (for your first game you could try giving the answers in brackets):

Do you want to restore a saved game: (N)
Answer Y only if you have played before and have saved off a partially completed game.

Do you wish to play the with trial fleets: (Y)
Answer Y if you wish to get used to the game with small fleets on both sides. If this option is chosen only the four English squadrons commanded by Howard, Drake, Hawkins and Frobisher, and the Spanish squadrons commanded by Medina Sidonia, Diego Flores, Mendoza and Moncada are used.

Do you wish to play the two day sea battle: (Y)
Again, this is just to get used to your new role as Admiral of the Fleet. The full game runs for five simulated days, this option reduces it to two days and one night.

Do you want a human to play Lord Howard: (Y for Howard, N for Medina Sidonia)
Answering Y means that a human player will be expected to enter orders for the English Fleet, otherwise the computer will take control. Similarly for Medina Sidonia.

The Armada is an excellent game for two humans to play, or alternatively both sides can be controlled by the computer, by way of a demonstration.

人 View all the English signalling: (Y for English, N for Spanish)

If you are playing one of the admirals then all the signals sent to you will be displayed. If you answer Y to this question all the signals between all of the ships in the fleet will also be shown as they arrive. This is a bit of a cheat but answer Y in your first few games to get the feel of how orders are interpreted. Similarly for Spanish signalling.

人 Do you want to be able to see what is going on other than from your own eyes: (Y)

When it is your turn to make orders a perspective view will be shown, with your flagship at the centre in the bottom of the screen. This option is another cheat but allows you to look from other captain's ships, and also from any town or coastal feature. Answer Y for your first few games, but when you get used to the concepts answer N.

人 Show the cannons firing: (Y)

Answer Y to see the guns smoke and the cannon balls crash or splash.

人 Change the historical orders: (N)

Answer N until you wish to change the scenario from the start by setting up different initial orders. Answering Y does not delete the existing initial orders, but new ones entered replace them.

✈   Save off the game automatically every three hours: (Y)

Ｔhe Armada game will take quite a few hours to play through, if you wish to ensure no disaster will mean going right back to the start then type Y for this option. The game data will then be saved off every three simulated hours.

A further question will be asked if the IBM PC version is being run:

✈   Are you using a mouse: (Y if you have one, N otherwise)

The Role of Admiral

As admiral, either Howard or Medina Sidonia, you only play the role of that one man. All the other captains and crew are played by the computer.

A fleet is divided into squadrons, each of between four and 25 ships, and there are eight English and nine Spanish squadrons. The squadrons are all under the command of one leader and orders to the leader can often be taken as orders to the whole squadron.

As admiral, you have a squadron of your own, and also of course a ship of your own, the flagship. The detailed control of both your ship and squadron is in the hands of the flagship's captain.

The captain makes the decisions on how to sail the ship, as admiral your main concern is the big picture, low level decisions are left with your minions. If your captain's decisions clash with your own orders, he will ask your permission to do what he would prefer. Alternatively you can take the helm and steer the ship yourself.

Appendix B gives a detailed account of all the orders that can be given, which are entered in English. The fleets have their initial historical orders, so there is no need to go overboard with orders to get things going.

The battle starts at 8 am on July 31 1588, and continues for five days.

Entering orders

Whenever orders can be entered, the admiral will be asked whether they are ready. As well as entering orders to subordinates there are a number of other options:

Order:	Meaning:
X (or Escape):	I do not want to enter any more orders.
Quit	Abandon the game altogether.
Save	Save off a partially completed game, but carry on with this one.
Pause	Freeze the action, the admiral needs a break!
Points	Gives the current points count of both sides.
Snap (Atari ST version only)	Save off the view in a NEO picture format file for viewing outside of the program.
‹ship or squadron commander's name›	This will give some details of the ship, or the latest battle report from the squadron commander.
Look ‹direction›	You can look North, South, East or West from your flagship, and from any other ship, town or coastal feature if you made that option available.

For example:

```
LOOK NORTH
LOOK EAST FROM THE REVENGE
LOOK W FROM PORTSMOUTH
LOOK S FROM DRAKE
LOOK E FROM THE-NEEDLES
```

Helm — Taking the helm will give you direct control over the steering of the ship. Normally this is done by the Captain.

Cabin — Returns the helm to the Captain. You can give orders and receive messages from your cabin, but the steering of the ship is left up to the Captain.

Sleep for <n> hours — If you wish to take no involvement in the running of the fleet, perhaps through one of the simulated nights, then you can retire for a given number of hours.

Appendix B gives a full list of orders, but simple ones work, for example:

```
CAPTAIN SAIL TO PORTLAND-ISLE
CAPTAIN ATTACK THE ENEMY 1 MILE
SOUTH OF YOU
```

Experiment to get some idea of the power of your command. If a red error statement appears at the bottom of the screen, type a key before correcting the mistake. If you have typed something the English language parser cannot recognise, there is no need to type it again, the cursor will be placed where the problem was noted and you can correct it. Enter an order by pressing the Return key.

The Graphics

The ships of either fleet can be recognised by their shape, the colour of their sails, and the paintwork down their sides. If you are unfortunate enough to be using an IBM PC with CGA graphics, then you will have to make frequent use of the telescope to determine what's what.

English ships:

All have light blue colouring in their sails, and red paintwork.

Galleon	sleek and fast, three masts
Carrack	large and high out the water, three masts
Pinnace	small and low, two masts
Large and Small Merchants	a variety of sizes with two or three masts

Spanish ships:

All have light purple colouring in their sails, and deeper purple paintwork.

Galleon	warships, but high in water, four masts
Carrack	converted merchantmen, large with four masts
Galleass	powerful, with oars and three masts
Zabra	small, low, and fast, with two masts
Large and Small merchants	a variety of sizes

In addition to ships there is the English coastline, including cliffs, rocks, islands, mudbanks, sand, shallows, rivers, streams, towns, roads, villages, churches, docks and special features such as the Needles. Of particular interest are the coastal forts and castles, all are armed.

The Telescope

To help identify the view you can use your telescope (the mouse cursor) to pick out details. Clicking on any point of interest will tell you what it is. Clicking on top of the order paper should it be covering the bottom of the screen will remove it for you.

IBM PC

If you are using the IBM version, and do not have a mouse, the telescope can be controlled using the following function keys (*the cursor keys are not used here, as they can all be used to edit your orders*)

F1: up	F2: right
F3: left	F4: down
F5: click	

‹k› Whenever this symbol appears in the bottom right hand corner of the screen the program is waiting for you to press a key, press the left mouse button, or wait for a time-out.

Atari ST

The special key combination of control delete will delete to the end of an order from the cursor position.

Entering Names

To enter the name of a ship, town or coastal feature that is made up of several words it is necessary to hypenate them. For example, enter The Needles as The-Needles, and similar for Plymouth-Sound, San-Felipe-Santiago, Whitsand-Bay, and so on. Note that you only need enter enough letters to uniquely identify the name, so Whitsand-Bay can be entered simply as Whitsand.

The Simulation

As you get into the battle, you will probably want to know more about the full scope of the simulation. Reading one of the books in Appendix A will give you a lot more insight into how things have been programmed.

Probably the most important thing about sea warfare, which is different from land battles, is that ship's captains are given far more control over their own actions than, say, a regiment of infantry, and in many cases act as a law unto themselves. The implications of this are that they will make decisions which are not completely in sync with your orders, and when a battle does start you will find it very difficult to control the movements of ships that are engaged.

The Armada program takes the following things into account:

Weather:

The wind strength and direction is shown on the compass in the top left hand corner of the screen. The wind will vary in strength from zero to force nine on the Beaufort scale. When the strength is around force six, most captains will consider the weather as more dangerous than the enemy and attempt to take shelter or escape out to sea. However, if the wind is around force 5, and blowing the ship towards the shore, a captain will again take it out of danger rather than fight the enemy. The red arrow on the compass will point towards the direction from which the wind is coming.

Land that gives shelter to some areas of sea is taken into account, particulary in the main harbours at Plymouth, Weymouth, Portsmouth, Poole and around the Isle of Wight.

The winds are not randomly generated but match typical summer conditions in the Channel. These are that there is usually a West wind, at its peak during mid afternoon, slackening off during the evening and coming down from the North during the night. The wind is at its most calm in early morning, just as it changes from being a light offshore Northerly wind to a Westerly of slightly greater strength. Also day and night are based on accurate timings for dusk and dawn. The sun goes down around 9 pm, and returns around 5 am.

Types of ship:

The English fleet consists of galleons, carracks, pinnaces, and large and small merchant ships. All sail fairly well, the carracks being the most cumbersome and the galleons the most capable. Pinnaces are very small and cannot take much punishment. None have oars so can only sail with some wind.

The Spanish fleet consists of galleons, carracks, galleasses, zabras and large and small merchant ships. Apart from the zabras, which are small and fast, all are less capable sailers than their English counterparts. The galleons are the largest and most powerful.

The galleasses are unique in that they have oars, so can both move with no wind and also move, slowly, directly into the wind. They also have some guns pointing directly forward.

All ships have a compliment made up of officers, sailors and soldiers. The different qualities of the crews are taken into account. Most English captains and crew were very competent sailors, as were some Spanish, but many people on the Armada were drafted from the army and knew little of sailing.

Fighting tactics, culverins, cannons and small arms:

Three fighting tactics can be specified: long range, short range and grappling.

At long range only the culverins are effective (a culverin is a ship's gun firing a less heavy ball than a cannon but over a greater distance). The effective range of a cannon is little more than half that of a culverin. The Spanish ships were mostly equipped with cannons, with the English having an advantage in the greater numbers of culverins.

Grappling means going alongside the enemy, and attempting to storm and capture the ship with soldiers.

Only when ships are very close were small arms effective.

Ships can fight at night, but only when they are very close. Normally the captains will try to disengage as it gets dark.

Fouling, drifting, grounding and wrecks:

Ships sometimes foul on each other, getting their rigging, anchors or whatever entangled, and will have to unfoul before they can sail on properly. In strong winds a ship may be blown aground, or wrecked on cliffs or rocks.

Battle damage and repairs:

Gunfire can shoot away sails, masts and crew, it can also bash lumps out of the hull and knock out cannons and culverins. In 1588 cannons and culverins fired solid balls, not explosives, so only the force of impact caused damage. There was no resulting explosion or fire.

Of course, as guns are knocked out, crew killed, and sails and masts blown away the effectiveness of the ship will decrease proportionally.

If all the masts of a ship are blown away, but the crew is still capable, they will try to erect what is called a jury rig (a temporary makeshift mast) to give the ship some ability to sail. Also if any mast has all its sails blown away, the crew will try to replace some of them.

The effectiveness of the guns of this age is a subject of some debate, and it would be fair to say in this game the guns are given perhaps a more generous firepower than was probably the case.

The English guns were better mounted than most of the Spanish ones, and could be fired more often. Also some of the Spanish gun crews were drafted from artillery crews of the army, so had no experience of guns at sea.

Transferring crew:

If necessary all the officers (including yourself as admiral), or some sailors or soldiers can be transferred from one ship to another, perhaps to make up losses or to evacuate a badly damaged ship.

Embarking and disembarking soldiers:

The crux of any invasion is the landing of troops to capture key areas of the country. Soldiers can be disembarked (landed) on any bit of coastline where there is a beach or grass banks, or landed at docks. However the weather conditions must be right for a landing to take place on an exposed beach.

Similarly infantry can be embarked from any port, beach or grass bank, again as long as the weather is fine.

Fighting on shore:

There are coastal forts and castles which the English have manned with soldiers and culverins. There are also several thousand English militia (volunteers) defending some important towns.

Infantry landed from ships are assumed to be under the control of a commander in touch with the squadron's commander that they were landed from, and are ordered as one force through the squadron commander.

Rigging

Three different sailing rigs can be set. If the ship is at anchor the sails will be furled up and not visible. Normally full sails will be set, which gives the maximum speed, but in range of the enemy battle sails may be set, which slows the speed but offers less of a target and less damage will be done to the rigging by enemy gunfire.

You will see when battle sails are set as the main sails on the fore and main masts of the ships will be raised.

Features not present in Armada:

The simulation does not take into account some aspects of sea warfare, notably tides, towing, fireships, sailing up rivers, and lightening ships to sail them after they have grounded. Nor does the simulation include the possibility of capturing an enemy ship and manning it with your own crew to fight on your side (captured ships are simply scuttled, after taking the crew prisoner).

The land fighting is kept fairly simple, with all forces kept as either infantry or fixed shore batteries. That is, there are no cavalry forces, and no movable land artillery.

There is no option for the Admiral to go ashore.

Winning

The Spanish win if they capture a main town and some docks, and also keep a seaway clear for at least 3 miles out to sea. They can also win if they significantly defeat the English at sea. The English win if they stop the Spanish winning.

The ports that can be used to secure a victory are:

Plymouth, Weymouth, Poole, Portsmouth and Gosport.

If the Isle of Wight is chosen as a target the Spanish must secure one of the small docks at Cowes or Yarmouth, and also capture Carisbrook Castle.

Each ship has a certain points value, based on its size, armaments, crew, and similar information. Forts, castles and infantry also have their own points value. If the invasion fails the winner is decided by a comparison of the total points values lost by each side.

Appendix A
Recommended reading

The following books are accounts of the Spanish Armada, or related reference works.

From Merciless Invaders,

Alexander McKee, Souvenir Press.

The Defeat of the Spanish Armada,

Professor Mattingly.

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Appendix B
Giving Orders in English

All orders are typed in English and parsed to see how much sense they make. They almost all take the form :

‹to who›‹when to start›‹what to do›‹for how long›

The easiest way to control a fleet is to order the squadrons to keep formation, and then you only have to order the squadron leaders what to do, and not a mass of 70 ships or more.

As a general military rule it makes sense to order a ship through its squadron commander, because then no confusion can arise by you ordering the ship to do something and the squadron leader, unaware of this, ordering it to do something else. The ship will follow your orders in preference (as long as it gets them) but the squadron commander might get upset because he was relying on a ship doing something only to find it was ordered elsewhere.

In the examples DRAKE, HAWKINS and FROBISHER are English squadron commanders, OQUENDO is a Spanish squadron commander, DRAKE'S own ship is the REVENGE, and the BEAR and the LION are other ships. Ordering DRAKE is identical to ordering THE REVENGE, the names of all the squadron leaders are added as options. The historical leaders names can be used to help clarify that the order is to a squadron leader.

All orders are preceded with the word CAPTAIN, or the word SIGNAL. Basically you signal other squadron's and ships but order your own captain directly.

Whether an order is passed down to subordinate ships depends largely on its context. For example:

> SIGNAL DRAKE TO ADOPT SHORT RANGE TACTICS

implies that all his squadron should adopt these tactics, but

> SIGNAL DRAKE TO TRANSFER 1/3 OF YOUR CREW TO THE ARK

obviously implies it is just to Drake's own ship.

Assuming you want to sail some ships to Plymouth, the following examples show who will go.

Only the flagship:

> CAPTAIN TURN OFF THE STERN LAMPS
> CAPTAIN ORDER OUR SHIP TO SAIL TO PLYMOUTH

The flagship, your own squadron if it is following in formation, and all other squadrons if they are stationed relative to the flagship (in other words, possibly the entire fleet):

> CAPTAIN SAIL TO PLYMOUTH

Another squadron leaders ship only:

> SIGNAL DRAKE TO TURN OFF HIS STERN LAMPS
> SIGNAL DRAKE, ORDER YOUR SHIP TO SAIL TO PLYMOUTH

Another leader's ship, and all ships sailing in formation behind it:

> SIGNAL DRAKE SAIL TO PLYMOUTH

Several other squadrons:

> SIGNAL DRAKE, HAWKINS AND FROBISHER TO SAIL TO
> PLYMOUTH

Several named ships in a squadron:

> SIGNAL DRAKE, ORDER THE HOPE TO SAIL TO PLYMOUTH

Several unspecified ships in a squadron:

> SIGNAL DRAKE, ORDER 4 SHIPS TO SAIL TO PLYMOUTH

Several individual ships operating on their own:

> SIGNAL THE BEAR AND THE LION TO SAIL TO PLYMOUTH

All squadron leaders and their ships, regardless of whether they are stationed relative to the flagship:

> SIGNAL ALL SQUADRONS TO SAIL TO PLYMOUTH

Infantry disembarked by a squadron:

> SIGNAL OQUENDO ORDER YOUR INFANTRY TO MOVE TO PLYMOUTH

Infantry disembarked by the flagship's squadron:

> CAPTAIN ORDER MY INFANTRY TO MOVE TO PLYMOUTH

The Orders

The Formats show how to word the orders, the words in brackets are optional.

Setting sails

To go at full speed set full sails, but it might be sensible to set the slower but less vulnerable rig known as battle sails if within range of enemy artillery. You can leave the setting of sails to your Captain.

Format:

> to who (when) set sails

For example:

> CAPTAIN SET BATTLE SAILS

or:

> CAPTAIN SET FULL SAILS

Sailing and moving

Ships and land forces can be moved around relative to the positions of other ships, towns, the flagship, and basically any definable point.

In 1588 there was no way of calculating longitude, and latitude calculations were only accurate to around 30 miles or so, so when a ship was near a coastline it navigated using what was called caping (steering between capes).

When specifying a position either a named location can be used, or a relative distance and direction from a named location. A named location can be a ship, town, port, coastal feature bay, or perhaps simply THE FLAGSHIP.

All ships within a squadron will normally be ordered to sail in some formation (see the diagrams of the formations and the station numbers), and the squadron itself placed at a position relative to the flagship. In this case the ships and squadrons need be given no further movement orders (which is the purpose of a formation) but will follow the flagship as long as it has its stern lamps ON.

The Stern lamps of the squadron leaders are all ON at the start of the game.

If no station number is given to a ship, it will assume the number it started off with still applies.

If the flagship wishes not to lead the fleet but go on some individual task, say to attack an enemy on its own, it must turn its own stern lamps OFF. It would be sensible to order the rest of your squadron to, for example, hove–to, rather than leave them puzzled as to what to do.

Some technical terms (see the Landlubbers guide in Appendix F):

Anchor	*drop anchor and stay put*
Hove–to	*reduce sail and just drift*
Dock	*put into port*

Format:

> to who (when) sail to A (via B)
>
> to who (when) sail alongside ship
>
> to who (when) anchor (at A)
>
> to who (when) hove to (at A)
>
> to who (when) dock at port
>
> to who (when) follow in formation at station N
>
> to who (when) station your ship/squadron distance
> direction of the flagship
>
> to who (when) turn on/off the stern lamps
>
> to who (when) sail in formation.

For Example:

> SIGNAL DRAKE TO ANCHOR AT TOR-BAY
>
> SIGNAL DRAKE TO HOVE-TO
>
> SIGNAL HAWKINS TO DOCK AT POOLE
>
> SIGNAL DRAKE TO SAIL TO 1 MILE SOUTH OF PLYMOUTH
>
> SIGNAL HAWKINS TO SAIL TO 3 MILES SOUTH OF
> PORTSMOUTH VIA THE-NEEDLES
>
> SIGNAL HAWKINS, ORDER THE BEAR AND THE LION TO
> SAIL FOR PLYMOUTH
>
> CAPTAIN MOVE ALONGSIDE THE REVENGE
>
> SIGNAL THE BEAR TO SAIL TO THE REVENGE

And moving land forces...

SIGNAL OQUENDO, ORDER YOUR INFANTRY TO MOVE TO PLYMOUTH

And in formation...

CAPTAIN SAIL IN DOUBLE LINE ASTERN FORMATION

SIGNAL HAWKINS TO SAIL IN DOUBLE CRESCENT FORMATION

SIGNAL DRAKE AT 2 AM TOMORROW STATION YOUR SQUADRON 1 MILE SOUTH OF THE FLAGSHIP

SIGNAL THE BEAR, STATION YOUR SHIP 1 MILE SOUTH OF THE FLAGSHIP

CAPTAIN TURN ON THE STERN LAMPS

CAPTAIN TURN OFF THE STERN LAMPS

Engaging

If a fleet is being led into battle, it is going to engage as a matter of course, but if a separate action or a land battle is required, then engage orders will need to be given.

Engaging can take three styles:

Shadowing	following but out of range (not really engaging!)
Attack	attack the enemy where they are to obtain control of that piece of land or sea

       Chase   attack the enemy and go after them if
they move

Enemy ships were not usually recognisable individually, but can be specified by their type (galleon, carrack, zabra, galleass, merchant and so on).

In most cases the attack will be carried out according to the tactics specified by the adopt tactics order.

To direct an attack:

Format:

    to who (when) attack (an enemy force) (where)

For example:

    CAPTAIN ATTACK THE SPANISH GALLEONS TO YOUR
NORTHEAST

    SIGNAL DRAKE TO ATTACK THE ENEMY 3 MILES SOUTH
OF PLYMOUTH

    CAPTAIN ATTACK THE SPANISH GALLEASS 1 MILE NORTH
OF THE REVENGE

    SIGNAL ALL SQUADRONS TO CHASE THE SPANISH TO THE
SOUTHEAST

    CAPTAIN, SHADOW THE ENEMY TO THE SOUTHEAST

Disengaging

To call off a fight, perhaps as it is getting dark (to avoid total confusion) or to regroup. It is often useful to give a disengage order to extract some ships from a fight, before giving them more detailed orders of what you want them to do from then on. Alternatively the fight can be abandoned altogether.

Also, although most ship captains have the sense to do it anyway, an order can be given to find shelter, or escape to the open sea, from a strong storm or hurricane. A battle cannot take place in very high winds, as by far the greatest danger to ships and life is from being blown onto cliffs or rocks, or sunk.

Format:

> to who (when) disengage (duration)
> to who (when) abandon the battle
> to who (when) escape from the storm

For example:

> SIGNAL HAWKINS TO DISENGAGE
> SIGNAL THE REVENGE TO DISENGAGE
> SIGNAL ALL SQUADRONS, AT 3 30 PM DISENGAGE
> FOR 5 HOURS
> CAPTAIN AT 2 30 PM ORDER MY SHIP TO DISENGAGE
> SIGNAL ALL SQUADRONS TO ABANDON THE BATTLE

And to find shelter:

> SIGNAL ALL SQUADRONS TO ESCAPE FROM THE STORM

Defend

A special defend order is possible, both for land forces, but also for ships when the purpose is to defend a particular patch of water. Normally defending water is not a particularly useful job, except where it is, say, the entrance to a harbour. Troops or ships given a defend order will not normally go after any enemy they beat off.

Format:

> to who (when) defend where (duration)

For example:

> SIGNAL OQUENDO, ORDER YOUR INFANTRY TO DEFEND PLYMOUTH
> SIGNAL DRAKE, DEFEND 1 MILE SOUTH OF PLYMOUTH FOR 3 HOURS

Changing tactics

There are three tactical options: long range, short range and grappling. Changing tactics does not order any ship to attack but simply to adopt these tactics in future.

Long range	shell the enemy but keep out of short range
Short range	shell the enemy at any range, close if possible, but do not make contact
Grappling	shell the enemy at any range and attempt to grapple and board

Format:

to who (when) adopt tactics

For example:

CAPTAIN ADOPT LONG RANGE TACTICS

SIGNAL DRAKE, AT 2 30 PM TODAY ADOPT SHORT RANGE TACTICS

SIGNAL HAWKINS TO ADOPT GRAPPLING TACTICS

Patrolling

A ship, squadron or fleet can patrol a piece of sea with three distinct purposes.

Patrol	try to locate enemy and report anything in sight. If a fleet is sighted the patrolling ships will shadow it if they can, but will not engage.
Blockade	try to stop any enemy getting through the specified line, or to the specified port
Clear Seaway	try to keep a safe passage in and out of a port

Format:

```
to who (when) patrol from A to B (duration)
to who (when) patrol port (duration)
```

For example:

```
SIGNAL DRAKE TO BLOCKADE PLYMOUTH
SIGNAL HAWKINS TO PATROL FROM PLYMOUTH TO 3
MILES SOUTH OF WHITSAND-BAY
SIGNAL HAWKINS TO CLEAR THE SEAWAY AT POOLE
SIGNAL DRAKE TO BLOCKADE FROM THE-NEEDLES TO 1
MILE EAST OF PORTLAND-BILL FOR 18 HOURS
```

Surrender

An unlikely order, but ships can be ordered to give up the fight.

Format:

> to who (when) surrender

For example:

> SIGNAL DRAKE ORDER THE BEAR TO SURRENDER
> SIGNAL FROBISHER TO SURRENDER

Transferring troops

The headquarters, officers, soldiers and crew of any ship can be moved around, possibly to make up crew that has suffered a lot of casualties, or to embark troops (pick up) or to disembark them (put down) at any bay or port.

If transferring a crew from one ship to another it would be sensible to move alongside it first. Also there must be room for everybody on the ship, so be careful of transferring too much, especially onto a pinnace or zabra.

Most ships are made up of officers, soldiers and crew, land forces of only officers and soldiers. A flagship also includes the headquarters. When transferring troops all or any fraction of them can be specified.

When picking up soldiers, say after an unsuccessful invasion attempt or picking up reinforcements , the word ANY can be used to tell the captain to pick up as many as he can carry, regardless of whose command they are in.

Format:

> to who (when) (dis)embark troops (at landing place)
>
> to who (when) transfer troops/crew to ship

For example:

> SIGNAL DRAKE, DISEMBARK YOUR INFANTRY
>
> SIGNAL DRAKE, ORDER THE LION AND THE BEAR, AT 5 AM DISEMBARK YOUR INFANTRY AT POOLE
>
> SIGNAL THE BEAR TO EMBARK ANY INFANTRY AT POOLE
>
> SIGNAL THE BEAR TO TRANSFER 1/2 OF ITS CREW TO THE REVENGE
>
> CAPTAIN TRANSFER 1/3 OF THE CREW AND ALL OF THE SOLDIERS TO THE BEAR

And to forces on land:

> CAPTAIN ORDER MY INFANTRY TO EMBARK AT POOLE
>
> SIGNAL DRAKE ORDER YOUR INFANTRY TO EMBARK AT WHITSAND-BAY
>
> SIGNAL OQUENDO, DISEMBARK YOUR INFANTRY 1 MILE WEST OF BOURNEMOUTH

Battle reports

To get information on the state of ships and casualties, battle reports can be requested. The time delay in getting them will ensure, though, that most of them will be out of date before they arrive.

Format: to who (when) send me your battle report

For example:

> SIGNAL ALL SQUADRONS, SEND ME YOUR BATTLE
> REPORTS
> SIGNAL THE BEAR, SEND ME YOUR BATTLE REPORT
> CAPTAIN AT 3 30 PM SEND ME YOUR BATTLE REPORT

Supporting and reassigning ships
between squadrons

A squadron can be ordered to give or take support from another. It can also be ordered to reassign one of its own command to another. When a squadron is supporting another it will go to its aid, if it can, when a request is made.

If an order to give support is sent to one squadron, remember to send the equivalent take support to the other.

These orders can only be given to squadron commanders.

Format:

> to who   (when)   give/take support from squadrons
>
> to who   (when)   stop giving/taking support from squadrons
>
> to who   (when)   stop giving/taking support
>
> to who   (when)   assign ships to squadron

For example:

> SIGNAL DRAKE TO ASSIGN THE BEAR AND THE LION TO HAWKINS
>
> SIGNAL DRAKE AND FROBISHER TO GIVE SUPPORT TO HAWKINS
>
> SIGNAL HAWKINS TO TAKE SUPPORT FROM FROBISHER
>
> SIGNAL HAWKINS TO STOP GIVING SUPPORT
>
> SIGNAL HAWKINS TO STOP TAKING SUPPORT FROM DRAKE AND FROBISHER
>
> SIGNAL HAWKINGS TO TRANSFER THE BEAR TO MY SQUADRON
>
> CAPTAIN ASSIGN THE BEAR AND THE LION TO HAWKINS

Loss of the fleet or a squadron's flagship

If a ship commanding a squadron gets lost, sunk, disabled or captured, the remaining ships can either be assigned to another squadron, or one of them can be promoted to take command.

Normally the vice–flagship of the squadron would be given command.

. If the admiral wishes to change the command hierarchy before a squadron flagship is lost, he must relieve the first commander before appointing his successor.

If the fleet flagship is in danger, normally the admiral will try to transfer to another ship before it's too late. If not, command of the fleet will be lost, although the squadrons will keep fighting.

Format:

> to who (when) assume command of ex-leaders squadron
>
> to who (when) relieve command of your squadron to new leader
>
> to who (when) take orders now from squadron leader

For example:

> SIGNAL THE BEAR TO ASSUME COMMAND OF
> FROBISHERS SQUADRON
>
> SIGNAL FROBISHER TO RELIEVE COMMAND OF YOUR
> SQUADRON TO THE BEAR

And to an individual ship:

> SIGNAL THE LION TO TAKE ORDERS FROM DRAKE

Combinations of orders

Orders of different types, may be combined to achieve desired objectives, as in the following two examples

To change flagships

Assume the Ark is the current flagship and it is being followed by the Bear, in station 2:

> SIGNAL THE BEAR TO MOVE ALONGSIDE THE ARK
> CAPTAIN MOVE ALONGSIDE THE BEAR
> CAPTAIN TRANSFER THE HQ TO THE BEAR

then (after the transfer has taken place)

> CAPTAIN TURN ON THE STERN LAMPS
> SIGNAL THE ARK TO TAKE ORDERS FROM THE BEAR
> SIGNAL THE ARK TO FOLLOW IN LINE ASTERN FORMATION
> AT STATION 2

An order to all squadron leaders of the change of flagship will be sent automatically by the new captain.

Capturing a fort

Oquendo is a Spanish squadron commander: the plan is to land infantry on a beach near to the fort to attack it after the fort has been bombarded from the sea.

> SIGNAL OQUENDO, DISEMBARK YOUR INFANTRY AT TOR-BAY
>
> SIGNAL OQUENDO, AT 3 30 PM ORDER YOUR INFANTRY TO ATTACK THE FORT 1 MILE SOUTHWEST OF PLYMOUTH
>
> SIGNAL OQUENDO, AT 1 PM ATTACK THE FORT 1 MILE SOUTHWEST OF PLYMOUTH FOR 2 HOURS 30 MINS

Depending on the success of the venture....

> SIGNAL OQUENDO ORDER YOUR INFANTRY TO EMBARK AT CAWSAND-BAY

or....

> SIGNAL OQUENDO ORDER YOUR INFANTRY TO DEFEND 1 MILE SOUTHWEST OF PLYMOUTH

Appendix C
The Formations

A squadron can be ordered to form one of a given number of formations, so orders need only be given to the squadron flagship as all the rest will follow suit. This makes control of a huge fleet so much easier, and both fleets start off with all ships in formations, and are given initial station numbers.

The diagrams below shows a squadron of four to fourteen ships, with the appropriate station numbers, but they can of course be any size. The flagship can be that of the admiral's or of any squadron leader.

Formation options:

Open: any order following the flagship, no station numbers
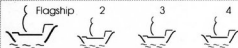
Line astern

Double line astern
(note second ship is to
port of the flagship).
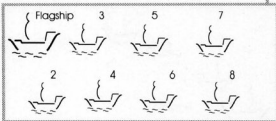
Line abreast to port
(implies ships form to
port of flagship, and
similarly for line
abreast to starboard)
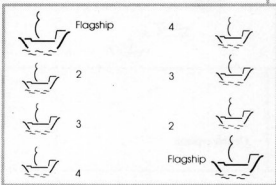
Double line
abreast to port
(and similarly for
double line abreast
to starboard)
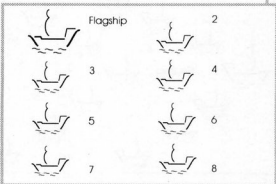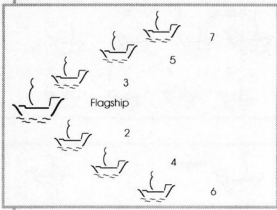
Crescent

Double crescent
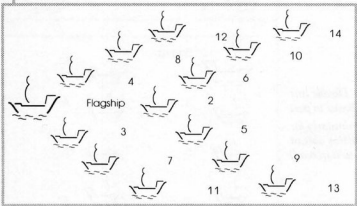
Echelon to port
(and similarly
for echelon to
starboard)

Flagship

2

3

4
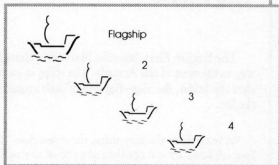
Double echelon
to port
(and similarly
to starboard)

Flagship

2

3

4

5

6

7

8
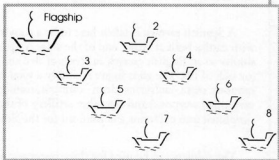
Appendix D
The Fleets

The English Fleet, based in Plymouth, starts having just worked its way to the west of the Armada. The ships in each squadron are listed after the leader, the vice-flagship of each squadron coming second in the list.

In both fleets the tiny ships, those less than 100 English tons, or 150 Spanish tons, are not considered to be of any military significance, other than in the carrying of messages and supplies, and are not explicitly represented in the game. The exceptions to this are the three English pinnaces the Moon, Advice and Charles, which are represented as they were Queen's ships and these ships (the first four English squadrons) did most of the fighting.

A Spanish carrack is taken here to be a converted merchantman with castles built at either end of the ship. A Spanish galleon was fairly similar to an English carrack in terms of size and sailing performance (or lack of it!). The guns figure is simply a total of all culverins, cannons, demi-culverins, demi-cannons, minions and sakers (both very small weapons) and the other artillery of the time. The figures are simplified into culverins and cannons for the simulation.

The soldiers can be used for three purposes, providing small arms fire, fighting with enemy ships trying to board, or landing and fighting ashore. The sailors can only be used to sail the ship, but will defend against being boarded.

The ship's weight, given in tons, is a dubious figure based on anything but the ship's actual weight, but is used to calculate its relative size and ability to withstand damage. To further confuse the issue a Spanish ton is very approximately five eighths of an English ton (very approximately as even the sailors at the time do not seem to have taken the measure too seriously).

Where a leader has a particularly wordy name, the shortened form used in the game (and no doubt in reality) is given in brackets. Some Spanish ships have particularly flowery names and these must be referred to with hyphens joining the words.

The English Fleet

Admiral: Lord Howard

type	name	guns	tons	sailors	soldiers
galleon	Ark	55	800	270	136
galleon	Bonaventure	47	600	150	76
galleon	Lion	38	500	150	76
pinnace	Moon	9	60	34	0
pinnace	Advice	9	50	31	0
pinnace	Charles	16	70	36	0

Sir Francis Drake

galleon	Revenge	43	500	150	76
galleon	Nonpareil	38	500	150	76
galleon	Swallow	8	360	110	30
galleon	Aid	18	250	90	14
galleon	Hope	48	600	160	85

Sir John Hawkins

galleon	Victory	42	800	270	126
galleon	Foresight	37	300	110	20
galleon	Swiftsure	42	400	120	40
galleon	Dreadnought	32	400	130	40

Sir Martin Frobisher

carrack	Triumph	42	1200	300	160
carrack	Mary–Rose	36	600	150	76

carrack	Jonas	56	900	300	150
carrack	Bear	40	1000	300	150

(note: none of the merchant ships carry any soldiers)

Captain George Fenner

type	name	guns	tons	sailors
galleon	Leicester	10	400	160
large merchant	Merchant–Royal	10	400	160
large merchant	Edward	10	300	120
large merchant	Roebuck	10	300	120
large merchant	Golden–Noble	10	250	11
large merchant	Griffin	10	200	100
large merchant	Minion	10	200	80
large merchant	Bark–Talbot	10	200	90
large merchant	Thomas–Drake	10	200	80
large merchant	Spark	10	200	90
large merchant	Hopewell	10	200	100
galleon	Dudley	10	250	96
large merchant	Virgin	10	200	70
large merchant	Hope–Hawkyns	10	200	80
small merchant	Bark–Bond	4	150	70
small merchant	Bark–Bonner	4	150	70
small merchant	Bark–Hawkyns	4	150	70
small merchant	Bark–St–Leger	4	160	80
small merchant	Bark–Manington	4	160	80
small merchant	Bear–Yonge	4	140	70

Captain George Barne

type	name	guns	tons	sailors
large merchant	Hercules	10	300	120
large merchant	Toby	10	250	100
large merchant	Mayflower	10	200	90
large merchant	London–Minion	10	200	90
small merchant	Defence	4	160	80
large merchant	Ascension	10	200	100
small merchant	Gift–of–God	4	180	80
large merchant	Primrose	10	200	90
large merchant	Margaret–and–John	10	200	90
small merchant	Golden–Lion	4	140	70
small merchant	Bark–Burr	4	160	70
large merchant	Tiger	10	200	90
small merchant	Brave	4	160	70
large merchant	Red–Lion	10	200	90
large merchant	Centurion	10	250	100
small merchant	Thomas	4	140	70
small merchant	George–Noble	4	120	80
small merchant	Pigot–Toby	4	120	70
small merchant	Salamander	4	110	60
small merchant	Antelope	4	120	60
small merchant	Jewel	4	110	60
small merchant	Prudence	4	120	60
small merchant	Dolphin	4	110	70

Two small squadrons to the east of Poole

Captain Nicholas Gorges

type	name	guns	tons	sailors
large merchant	Parnell	10	220	80
large merchant	Violet	10	220	60
small merchant	Solomon	4	170	80
small merchant	Frances	4	180	70
large merchant	George	10	200	80
small merchant	Vineyard	4	160	60
small merchant	Samuel	4	140	50

Captain Charles Howard (C-Howard)

small merchant	White–Lion	4	140	50
small merchant	Edward–of–Maldon	4	150	30
small merchant	Nightingale	4	160	16

English militia infantry

3000 men around Plymouth

2500 men around Weymouth and Poole

1500 men at Portsmouth and Gosport

1500 men on the Isle of Wight

The Spanish Fleet

Admiral: The Duke of Medina-Sidonia

type	name	guns	tons	sailors	soldiers
galleon	San–Martin	48	1000	166	300
galleon	San–Juan	50	1050	169	321
galleon	San–Marcos	33	690	116	292
galleon	San–Felipe	40	800	116	415
galleon	San–Luis	38	830	116	366
galleon	San–Mateo	34	650	120	266
galleon	Santiago	24	520	93	300
galleon	Florencia	52	961	86	400
galleon	San–Cristobal	20	352	68	300
galleon	San–Bernardo	21	352	81	250
zabra	Augusta	13	166	56	55
zabra	Julia	14	166	62	44

Juan Martinez de Recalde (Recalde)

carrack	Santa–Ana	30	668	63	256
carrack	Gran–Grin	28	1160	63	256
carrack	III–Santiago	25	666	102	214
carrack	Zubelzu	16	486	60	90
carrack	Juanes–del–Cano	18	418	61	164
carrack	Magdalena	18	530	66	193
carrack	II–San–Juan	21	350	80	114
carrack	Maria–Juan	24	665	100	162
carrack	Manuela	12	520	54	125
carrack	Santa–Maria	18	606	45	206

Diego-Flores

type	name	guns	tons	sailors	soldiers
galleon	II–San–Cristobal	36	700	120	205
galleon	San–Juan–Bautista	24	750	136	207
galleon	San–Pedro	24	530	131	141
galleon	III–San–Juan	24	530	113	163
galleon	Santiago–el–Mayor	24	530	132	210
galleon	San–Felipe–Santiago	24	530	116	151
galleon	Asuncion	24	530	114	199
galleon	Nuestra–Senora	24	530	108	155
galleon	San–Medel	24	530	101	160
galleon	II–Santa–Ana	24	250	80	91
galleon	Begona	24	750	123	174
galleon	Trinidad	24	872	122	180
galleon	Santa–Catalina	24	882	159	190
galleon	II–San–Juan–Bautista	24	650	93	192

Don Pedro de Valdes (Don-Pedro)

carrack	Rosario	46	1150	118	304
carrack	San–Francisco	21	915	56	222
carrack	IV–San–Juan	31	810	89	245
carrack	San–Juan–de–Gargarin	16	569	56	165
carrack	Concepcion	20	862	71	185
carrack	Duquesa–Santa–Ana	23	900	77	280
carrack	II–Santa–Catalina	23	730	77	231
carrack	II–Trinidad	13	650	74	192
carrack	Juncal	20	730	80	228
carrack	San–Bartolome	27	976	72	240

Miguel de Oquendo (Oquendo)

type	name	guns	tons	sailors	soldiers
carrack	III–Santa–Ana	47	1200	82	303
carrack	Rosa	26	945	64	233
carrack	San–Salvador	25	958	75	321
carrack	San–Esteban	26	736	68	196
carrack	Santa–Marta	20	548	63	173
carrack	Santa–Barbara	12	525	45	154
carrack	San–Buenaventura	21	379	53	168
carrack	Maria–San–Juan	12	291	30	110
carrack	Santa–Cruz	16	680	32	156
carrack	Doncella	16	500	32	156

Martin de Bertendona (Bertendona)

type	name	guns	tons	sailors	soldiers
carrack	Regazona	30	1249	80	344
carrack	Lavia	25	728	71	203
carrack	Rata–Coronada	35	820	84	335
carrack	San–Juan–de–Sicilia	26	800	63	279
carrack	Trinidad–Valencera	42	1100	79	281
carrack	Anunciada	24	703	79	196
carrack	San–Nicolas	26	834	81	374
carrack	Juliana	32	860	70	325
carrack	Santa–Maria–de–Vison	18	666	71	236
carrack	Trinidad–de–Scala	22	900	79	307

Juan Gomes de Medina (Medina)

type	name	guns	tons	sailors	soldiers
large merchant	Gran–Grifon	38	650	43	243
large merchant	II–San–Salvador	24	650	43	218
small merchant	Perro–Marina	7	200	24	70
large merchant	Blanco–Mayor	16	500	36	161
large merchant	Castillo–Negro	27	750	34	239
large merchant	Barca–de–Amburg	23	600	25	239
large merchant	Paz–Grande	26	650	27	198
large merchant	San–Pedro–Mayor	18	500	28	213
large merchant	Sanson	18	500	31	200
large merchant	San–Pedro–Menor	18	500	23	157
large merchant	Barca–de–Anzique	26	450	25	200
small merchant	Blanco–Mediano	16	300	27	76
large merchant	Santo–Andres	14	400	28	150
large merchant	Paz–Chica	15	350	24	162
large merchant	Ciervo–Volante	18	400	22	200
small merchant	Paloma–Blanca	12	250	20	56
small merchant	Ventura	4	160	14	58
large merchant	III–Santa–Barbara	10	370	22	70
large merchant	IV–Santiago	19	600	30	56
large merchant	David	7	450	24	50
large merchant	Gato	9	400	22	40
small merchant	Esayas	4	260	16	30
small merchant	San–Gabriel	4	280	20	35

Don Antonio Hurtado de Mendoza (Mendoza)

type	name	guns	tons	sailors	soldiers
zabra	Zaragoza	11	300	51	109
zabra	Caridad	12	180	36	70
zabra	San–Andres	12	150	29	40
zabra	Crucifijo	8	150	29	40

Don Hugo de Moncada (Moncada)

galleass	San–Lorenzo	50	1000	124	262
galleass	Zuniga	50	1000	112	178
galleass	Girona	50	1000	120	169
galleass	Napolitana	50	1000	112	264

Appendix E
The Initial Historical Orders

All the ships are given station positions in the squadron identical to their positions in the lists above (For example the Bonaventure is in station 2 of Howards squadron, the Lion in station 3, and so on).

English

All squadrons will adopt long range tactics, except the pinnaces and small merchant ships whose presence is largely for moral support, and who will mostly shadow the enemy.

Howard, Hawkins, Frobisher and Drake to shadow the enemy carracks 1 mile east of the flagship.

Gorges and C–Howard to patrol from 1 1/2 miles SE of Poole to 1/2 mile S of The Needles.

All squadrons start in Open formation.

Spanish

The fighting galleons and carracks will adopt grappling tactics, the galleasses short range tactics, the merchant ships and zabras will try to keep out of range.

Medina Sidonia follows an invasion plan to attack one of the ports along the South Coast or the Isle of Wight. The fleet is organised as follows:

Captain sail in double echelon to starboard formation.

Recalde sail in double echelon to port formation. Recalde station your squadron 3/4 mile northwest of the flagship.

Diego–Flores sail in double echelon to port formation. Diego–Flores station your squadron 1/6 mile northwest of the flagship.

Don–Pedro sail in double echelon to port formation. Don–Pedro station your squadron 1/2 mile northwest of the flagship.

Oquendo sail in double echelon to starboard formation. Oquendo station your squadron 1/2 mile southwest of the flagship.

Bertendona sail in double echelon to port formation. Bertendona station your squadron 3/4 mile southwest of the flagship.

Medina sail in open formation. Medina station your squadron 1/2 mile west of the flagship.

Mendoza sail in double line abreast to port formation. Mendoza station your squadron 1/4 mile west of the flagship.

Moncada sail in line abreast to port formation. Moncada station your squadron 1/3 mile west of the flagship.

Appendix F
Landlubbers Guide

Aft or Stern	the blunt end
Anchor	a heavy metal thing with a rope or chain attached, and thrown over the side to hold the ship stationary
Bow or Fore	the sharp end
Cannon	an artillery piece that fires a solid ball with an effective range of about 1/2 mile
Carrack	a large merchant ship, in this case converted into a warship
Culverin	similar to a cannon but with an effective (but not very!) range of nearly a mile
Dock as a noun and as a verb	where ships tie up to land the process of doing so
Fouled	entangled with another ship, either by accident, or during a grappling attempt
Galleass	a large warship with both sails and oars
Galleon	an ocean going warship, with recently improved sailing qualities

Grappling	to try to grab an enemy ship with grapples with the aim of storming and capturing it
Heave–to or Hove–to	to set the sails so they work against each other so the ship remains almost stationary
Helm	the ship's wheel
Pinnace	small and fast, 2 masted vessels usually used for carrying messages. (Also called a Zabra.)
Port	left
Shadow	to follow an enemy ship or fleet just out of range of its guns
Starboard	right
Station	the position of a ship or squadron in sailing order for example, station 2 is directly behind the flagship
Strike or Struck	to strike your colours is to pull out of the fight, but without actually surrendering until being boarded by the enemy, and is usually done when a ship is badly damaged