



Carmen A. "[Snow White Sorrow](#)"

*presents*



# WILLEMSTAD BUILDERS' TRIALS

*for*



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# Introduction



The aim of this project is to review the handling characteristics of all common high seas and littoral vessels within the scope of PIRATES OF THE CARIBBEAN: [NEW HORIZONS](#) / BUILD 14.

Where necessary, changes shall be proposed and field modifications implemented in order to improve the handling of the aforesaid vessels with an eye to realism in gameplay. The vessels will be reviewed on a class by class basis and their sailing characteristics detailed forthwith.

## “219 ships in 13 days”

This project came into being from the author's personal interest in the age of sail. Needless to say it was considered a novel idea to bring the memoirs of history into a arcade-style Pirates of the Caribbean roleplaying game; but herein lies an out of the box approach to realism:

Anyone can plug in scientifically vetted, mathematically precise performance statistics into a game.

But it will not look “realistic” in any way. Nor would it play out that way. To correctly translate historical accounts into believable gameplay encouraging tactics and strategies of the period, one must in a way, serve as a mediator between science and intuition. Just let the ships sail as they were in the history logs. Don't force players to read a 600 page manual just to move the rudder and fire the guns.

So we don't need a million fancy lines of code to bring you a 16<sup>th</sup> to 19<sup>th</sup> Century wind-powered combat simulation that hopefully, spurs your further interest in that colourful and world-defining period of history known as the [Golden Age of Sail](#). How can we achieve that? Oh, it's just old world charm at work. You don't need a master's degree in nautical science to imagine yourself as Captain Jack Sparrow, do you?





# The Inner Workings of WBT

As aforesaid, WBT is not your typical “realism mod”. It's not based on a multitude of complex equations, nor does it demand micromanagement beyond what is necessary for an already simplified sailing / roleplaying video game.

It's actually easier to sail with WBT than without. Child's play as well to implement a variety of quasi-realistic sailing and combat techniques. So easy, you could make a [Sir Francis Drake](#) out of your 8 year old son...

And now you'd be wondering how. Here's how:

Most simplified vehicle simulations today run on rails. They turn when you ask them to turn, stop moving the moment you release the control key(s). Is this realistic? Walking at a slow speed, probably yes, but not a thousand ton seagoing vessel. The game designers thought that eliminating inertia management would make the game accessible to everyone, but eliminating such a common-sensical part of life from the game?

I think they're wrong in that respect. Very wrong. Games work on a premise of suspension of disbelief, and I believe that adding a little bit of inertia makes a lot of difference to a vehicle simulation. And educate too.

As a result, in WBT you now can:

- **Successfully [change tack](#)** without the game jamming the brakes and stopping the ship in one second the moment she stalls her sails (though you still have to reef all sails when tacking).
- Employ **[momentum based tactics](#)** with large ships. Imagine a frigate using her excellent running characteristics to conduct “boom and zoom” tactics against more agile but slower prey.
- Not have an aching finger after depressing the A key for 5 minutes to turn a large vessel about. You can imagine **yaw inertia** in manoeuvring as being able to set a rudder position and have it stick, semi-automatically. Or surprise smaller foes in your Spanish Fast Galleon by swinging the rudder hard over; her shallow draft means she will be able to achieve a surprisingly small turning circle; the only problem is you need some muscle to slew the massive rudder over in such short notice.
- Learn the **basics of real world sailing**, where counter-rudder is necessary for proper ship control, and the characteristics of various rigging types, as well as hull configurations. [Short-hulled sloops turn on a dime](#) and their sail configuration allows them to sail almost right into the wind, but limit their top speed drastically.
- Reference **[historical accounts](#) with gameplay experiences**. If an encyclopaedia says a snow-brig can be a formidable littoral combat ship but difficult to sail upwind, you bet it's in the game.

And so on. We hope that by being proactive and experimenting with never-tried-before gaming solutions, we can make PIRATES OF THE CARIBBEAN: NEW HORIZONS an attractive pastime not just to admire, but for you to customise and contribute to our community of ladies and gentlemen as well.

The entire operation of WBT relies on just these 5 lines of code in POTC\Program\Ships\shipsinit.c, which you can open in Notepad or a more advanced and recommended text editor like Notepad ++

```
if (!bArcadeMode){
    refShip.SpeedRate          = 12.5;
    refShip.TurnRate           = 80;
    refShip.InertiaAccelerationX = 4;    refShip.InertiaBrakingX          = 0.5;
    refShip.InertiaAccelerationY = 2;    refShip.InertiaBrakingY          = 0.5;
    refShip.InertiaAccelerationZ = 2.5; refShip.InertiaBrakingZ          = 2.0;
}else{
    refShip.SpeedRate          = 12.5;
    refShip.TurnRate           = 31;
    refShip.InertiaAccelerationX = 0.2; refShip.InertiaBrakingX          = 2.0;
    refShip.InertiaAccelerationY = 6;   refShip.InertiaBrakingY          = 3;
    refShip.InertiaAccelerationZ = 2.0; refShip.InertiaBrakingZ          = 4.0;
}
```

The underlined values control the ship's behaviour in **Realistic sailing mode**, where WBT is implemented.





# The Willemstad Builders' Trials

## Case Files

*This listing of ships represents a complete gameplay guide and ship recognition manual for conventional vessels only.*

No.	Ship / Class	Guns	Nation
1	<a href="#">Tartanes</a> & Gunboats	0-8 x 4 pdr	Any
2	Le Corentin / <a href="#">Lugger</a>	12 x 6 pdr	France
3	L'Argent / European <a href="#">Barque</a>	16 x 6 pdr	France
4	La Belle / <a href="#">Barque Longue</a>	16 x 6 pdr	France
5	HMS Bark Endeavour / <a href="#">English Bark</a>	16 x 6 pdr	England
6	HMS Bark Medina / <a href="#">Jackass Bark</a>	16 x 6 pdr	England
7	HMS Providence / <a href="#">Sloop</a>	16 x 9 pdr	England
8	HMS Stingray / <a href="#">Bermuda Sloop</a>	10 x 12 pdr	England
9	El Vigilante / <a href="#">Spanish Gunship</a>	16 x 12 pdr	Spain
10	HMS Beagle / <a href="#">Brig</a>	16 x 9 pdr	England
11	USS Niagara / <a href="#">Snow-Brig</a>	20 x 9 pdr	U.S.A.
12	Adelaar / <a href="#">Gaffsail Schooner</a>	18 x 9 pdr	Holland
13	HMS Spartan / Jury-Rig <a href="#">Topsail Schooner</a>	20 x 12 pdr	England
14	<a href="#">Baltimore Clipper</a> / American <a href="#">Topsail Schooner</a>	20 x 6 pdr	U.S.A.
15	HMS River Thames / <a href="#">Heavy Squaresail Schooner</a>	20 x 12 pdr	England
16	Le Fantastique / <a href="#">Grand Schooner</a>	24 x 12 pdr	France
17	HMS Barracuda / <a href="#">Sloop-of-War</a>	22 x 12 pdr	England
18	Falado / <a href="#">Brigantine</a>	22 x 12 pdr	Spain
19	Mistique / <a href="#">Xebec</a>	24 x 12 pdr	France
20	Swordfish / Pirate <a href="#">Xebec</a>	24 x 18 pdr	Pirates
21	Coeur D'or / <a href="#">Frigate Transport</a>	14 x 24 pdr	France
22	Bayonnaise / <a href="#">Corvette</a>	30 x 12 pdr	France
23	Vogelstruys / <a href="#">Fleut</a>	20 x 6 pdr	Holland
24	Gerechtigheid / <a href="#">Fleut-of-War</a>	30-54 x 6 pdr	Holland
25	Kalmar Nyckel / <a href="#">Pinnace</a>	18-26 x 9 pdr	Holland
26	Prinses Albertina / War Pinnace	40-58 x 9 / 12 pdr	Holland
27	Golden Hind / <a href="#">Elizabethan Galleon</a>	30 x 18 / 32 pdr	England
28	Santa Rosa / <a href="#">Caravela</a> (Caravel)	32 x 9 pdr	Portugal
29	Nuestra Senora de Atocha / <a href="#">Manila Galleon</a>	38 x 24 pdr	Spain
30	San Felipe / <a href="#">Spanish War Galleon</a>	40 x 32 pdr	Spain
31	Espanola / <a href="#">Spanish Fast Galleon</a>	32 x 32 pdr	Spain
32	Wageningen / <a href="#">Light Frigate</a>	32 x 12 pdr	Holland
33	Edam / <a href="#">Frigate</a>	42 x 12 / 18 pdr	Holland
34	HMS Surprise / <a href="#">Flushdeck Frigate</a>	42 x 32 pdr	England
35	<a href="#">USS Constitution</a> / American <a href="#">Battle Frigate</a>	52 x 24 pdr	U.S.A.
36	Earl of Abergavenny / <a href="#">East Indiaman</a>	52 x 18 pdr	England
37	<a href="#">4<sup>th</sup> Rate</a> Warships	44-60 x 24 pdr	Various
38	<a href="#">3<sup>rd</sup> Rate</a> Warships	70-82 x 24 / 32 pdr	Various
39	<a href="#">2<sup>nd</sup> Rate</a> Ships of the Line	90-98 x 32 pdr	Various
40	<a href="#">1<sup>st</sup> Rate</a> Ships of the Line	100-112 x 32 pdr	Various
41	USS Hudson / <a href="#">Experimental Steam Frigate</a>	44 x 24 pdr	U.S.A.





# Small Craft

## Tartanes, Gunboats, etc



### Description

A versatile range of lateen-rigged small vessels widely used for fishing and coastal trade.

There's actually not a lot of things to say about these ubiquitous small craft, but they can be very entertaining in gameplay... or your only hope.





# “Le Corentin”

## 12-gun Lugger



### Description

Small 3-masted coastal trader with lugsails.

### Characteristics

The lugsail is characterised by its equally good performance while sailing both up and downwind. Coastal luggers are small and joyful vessels which have served civilian economies for centuries.

### Recommendations

These ubiquitous ships have lost much of their capacity for bulk carriage due to the need for defensive armament in the pirate infested Caribbean. While a 4-gun broadside is respectable for a coastal vessel, the lugger's best defense is speed and manoeuvrability.

### Conclusions

Small, simple ships like these may not be able to boast of revolutionary performance, but they are versatile and easily handled. It is said that all famous privateers once started small, and one cannot go wrong with a ship that is unfussy and charming in manner.





# “L'Argent”

## 16-gun European Barque



### Description

Continental Barque typically destined for coastal trade.

### Characteristics

Barque-rigged vessels are easier to sail than full-rigged ships or schooners, with low crewing requirements.

### Recommendations

These are relatively spacious and very economical vessels but were never designed for outright combat, despite their aggressive cannon complement.

### Conclusions

The European barque is well suited to trade and light transport duties; a marked contrast to the speed and exceptional high seas handling of the English Bark.

With a mean six-gun broadside and a short, manoeuvrable hull, a well captained barque can be a difficult target indeed.

Being easy to handle under sail means more hands can be assigned to gunnery stations.





# **“La Belle”**

## 16-gun Barque Longue



### Description

A later development of the Continental Barque emphasising high capacity and manoeuvrability.

### Characteristics

A Barque Longue has a much larger hold than her predecessors and is a delight to sail. Her comparatively huge sail area is offset by the short, wide hull, which limits top speed considerably. Performance to windward is likewise compromised by her very shallow draft.

### Recommendations

As with earlier trading barques, this significantly larger modern development is intended for commercial use. Her low speed is a liability as she cannot easily escape from a fight, nor does she have enough firepower to deter a serious raider.

### Conclusions

While never as impressive in speed or grace as other contemporary vessel types of the period, the Barque Longue was the lifeline of many a French colony in the Caribbean and North America. It is perhaps their honest, practical simplicity that resulted in this type of vessel fading into obscurity as the larger, faster and better protected vessels came into play.





# **“HMS Bark Endeavour”**

## 16-gun English Bark



### Description

Versatile light transport vessel, typically 3-masted in British service.

### Characteristics

This is a very economical and efficient rig type; smaller crews are required due to reduced sail size compared to contemporary full-rigged vessels. Bark-rigged (note spelling that side of the Channel) ships are also able to sail remarkably well in close reach; a feat which most other square-riggers find difficulty emulating.

### Recommendations

She is a very good trade and exploration vessel with excellent handling qualities, but is very lightly protected. The regal hull can be a liability in combat; for it has a high profile. Her captain should aim to avoid short range combat at all costs; focusing on attaining the weather gage and outsail the enemy.

### Conclusions

Some of the most famous English explorers have sailed Barks deep into terra incognita to return with enduring fame. When chartering a vessel, be sure her class matches your desired campaign objectives, and she will look after you in turn.

The finer hull of English Barks, in comparison to more blocky continental types (Barques), affords them greater sailing speed.





# **“Bark Medina”**

## 16-gun Jackass Bark



### Description

English Bark modified with partial fore and aft / lateen rig for Mediterranean service.

### Characteristics

This configuration sacrifices a measure of top speed to be able to sail significantly closer to the wind. This is advantageous when operating in closed waters, or when wind direction is unpredictable. Agility is also marginally improved with this rig.

### Recommendations

Like any other “hermaphrodite” ship, carefully consider if the tradeoff in running performance is worthwhile. The motivation for a refit to partial fore-and-aft rig on a trading vessel is generally to reduce crew requirements and thus increase profit margins.

### Conclusions

These vessels are relatively rare in the Atlantic theatre of operations but pirates have been known to favour such configurations.

The finer hull of English Barks, in comparison to more blocky continental types (Barques), affords them greater sailing speed.





# "HMS Providence"

## 16-gun Sloop



### Description

Small single-masted, gaff-rigged vessel designed to optimise upwind sailing.

### Characteristics

The sloop offers excellent performance in close haul and is one of the few ship types that can perform reasonably well at all points of sail. They are not as quick in a downwind run as a complex full-rigged ship, but their astounding ability to turn on a dime cannot be discounted.

### Recommendations

These versatile vessels are prized by privateers and Navies alike; they may carry less cannon than contemporary armed schooners of the day, but are far handier in a knife fight.

Sloop captains in combat should aim to sail continually upwind where square-rigged pursuers would be placed at a significant disadvantage. Since your top speed is low, aim for the enemy's rigging to force them into a playing field dominated by the sloop: manoeuvrability.

### Conclusions

Sloop rigs feature some of the most efficient aerodynamics for upwind sailing, but their lack of downwind speed (without a spinnaker) is a significant point of contention; when confronted by faster vessels, the sloop is forced to wage a defensive battle.

Damage to the mast should be avoided as there is no redundancy; evade major enemy broadsides if possible with smart manoeuvring, keeping the mainsail end-on to the enemy to reduce damage to ownship's rigging.





# “HMS Stingray”

## 10-gun Bermuda Sloop



### Description

Advanced Bermudan raked-mast development of the traditional sloop, for trade and privateering off the American coast.

### Characteristics

These are some of the “fastest” ships of the Caribbean.... Upwind. The raked mast was meant to facilitate flying a huge sail area, and a deep draft provides significant improvements in seakeeping compared to coastal vessels such as the Baltimore Clipper.

### Recommendations

Bermuda sloops were prized by traders and privateers alike. All vessels of the sloop class enjoy good performance at all points of sail... the Bermuda sloop makes this even better. Her only weakness is the “broadsword” type wide hull in this configuration commissioned by the Royal Navy, limiting her top speed to a not-bad 13.5 knots.

### Conclusions

There's little use in boasting about your “fastest ship” if her full performance cannot be easily brought to play. The Bermuda Sloop offers peerless sailing ability... if you can handle her massive sail area. Single-masted designs were reportedly quite a handful.





# “El Vigilante”

## 16-gun Espadina / Spanish Gunship



### Description

Fore-and-aft rigged shallow-draft, flush-deck coastal gunship with square topsails.

### Characteristics

Her hybrid rigging provides well rounded performance and a very large rudder for maximum agility. The absence of any superstructure minimises topweight and thus such vessels enjoy excellent stability.

### Recommendations

El Vigilante's expansive deck was designed to support heavy artillery; superior range and hitting power coupled with excellent manoeuvrability makes for a deadly littoral combat ship. There however is much to be desired in terms of durability; such vessels were mass produced in a time of war emergency and are generally short lived.

### Conclusions

Desperately requisitioning ships to stem the tide of privateers preying upon the Spanish Main, the colonial authorities favoured vessels with large, wide flat decks that could support a sizable complement of cannon.

These ships generally followed the concept of function over form; featuring powerful cannon armament, a basic hull to facilitate fast construction, and efficient sail plan.

The Espadinas are the only coastal vessel strong enough to support 12 pounder artillery.



# "HMS Beagle"

## 16-gun Brig



### Description

Brigs are two-masted, square-rigged vessels.

### Characteristics

Brigs are traditionally known to possess exceptional agility. Being predominantly square-rigged, and with a relatively shallow draft, their progress upwind is challenging at best. Their top speed is not spectacular due to the short hull.

### Recommendations

If you do not mind a higher crewing requirement, the brig's sailing quality and high agility has made her one of the more popular choices for trade and light military duty.

### Conclusions

Brig-rigged vessels are some of the most popular small ships; in naval service, they are remarkably effective in combat in the hands of a skilled captain.



# “USS Niagara”

## 20-gun Snow-Brig



### Description

The Snow (pronounced “snoo”) is a type of brig employed in both merchant and naval roles.

### Characteristics

Brigs are traditionally known to possess exceptional agility and have good speed downwind. Being predominantly square-rigged, and with a relatively shallow draft, their progress upwind is challenging at best.

### Recommendations

Ships with fore-and-aft rigs (schooners, etc) may sail close to the wind; this is their main tactic in battle. Reverse that trend when sailing a brig. This type of rigging unfortunately requires a larger than average crew; she will be more profitable in moving higher-value cargoes.

### Conclusions

Despite her shortcomings in the upwind department, the Snow-Brig is loved by her captains as they are known to “sail beautifully and turn almost on the spot”. In naval service, her combination of higher than average downwind speed and exceptional turn rate results in a very deadly littoral combatant.





# “Adelaar”

## 18-gun Gaff Schooner



### Description

Fine-hulled, fore and aft-rigged vessel built for speed.

### Characteristics

Fast, nimble, with low crewing requirements. The slender V-hull is a double-edged sword, for it makes her a shark of the high seas at the cost of a larger turning circle, and low cargo capacity.

### Recommendations

Use for rapid transport of high value cargo. She will not be economical otherwise.  
For offensive use, consider investing in [carronades](#); this is a poor platform for long guns.  
Use superior agility to dictate the flow of battle.

### Results

Almost nothing can sail as well as a schooner against the wind, or wage littoral warfare as competently.

### Conclusions

Simple and effective. This ship turns heads for her excellent sailability. More recent schooner designs may offer superior performance in certain scenarios, but being basic and light in weight can be a major boon indeed.





# “Spartan”

## 20-gun Jury-rig Topsail Schooner



### Description

Militarised schooner with long mainmast and enlarged broadside.

### Characteristics

Long top, [square rigged](#) mainmast provides improved running capability, at the expense of almost everything else.

### Recommendations

A good interceptor type vessel for naval use. Best fought with hit and run tactics, as the ponderous jury rig can be easily toppled.

### Results

She is more than a match for anything smaller and handles well downwind. Like a stereotypical schoolyard bully, she is disadvantaged against anything faster or more agile.

### Conclusions

This ship was designed to meet military specifications of the period. Your mileage may vary.





# **“Baltimore Clipper”**

## 20-gun American Topsail Schooner



### Description

A much refined schooner from North America with advanced rigging.

### Characteristics

Renown speed and terrific performance at all points of sail, but larger than average turning circle.  
As with all other schooners, they are not the perfect platform for long range gunnery.

### Recommendations

Speed is life. These ships are not designed to take a beating, but to avoid harm in the first place.

### Results

Very few ships can keep up with a Baltimore Clipper.

### Conclusions

These vessels, first built for trade between the United States and the Caribbean, have over the years been renown for their role as privateers and blockade runners. Like the rest of the schooner-type vessels, they are most profitable when moving low-density, high asset value cargo.





# “HMS River Thames”

## 20-gun Heavy Squaresail Schooner



### Description

Large militarised schooner with square mainsail and reinforced hull

### Characteristics

Manoeuvrability reduced somewhat by increased bulk; this drawback partly mitigated by her increased sail area and excellent running characteristics.

### Recommendations

The large size of this vessel borders on ponderosity; employ [“boom and zoom” tactics](#), exploiting her excellent downwind speed and avoid sustained turning engagements.

### Results

Few vessels can keep up with a heavy schooner in running, and unlike most other vessels she handles just as well against the wind. She is easily able to outlast other littoral combatants and delivers tremendous weight of shot per broadside if fitted with carronades.

### Conclusions

River-class naval auxiliaries are well suited for patrol and escort duties.  
The advent of the oceanic frigate had made such vessels obsolete in the offensive role.  
As with all schooner-type layouts, the masts appear to be her Achilles' Heel.





# “Le Fantastique”

## 24-gun Grand Schooner



### Description

Large 3-masted schooner with basic fore and aft rigging.

### Characteristics

Vessel handles well, and can sail very close to the wind, but manoeuvrability had been sacrificed in favour of internal capacity and stability.

### Recommendations

Lack of squaresails does limit her top speed downwind, but in compensation she retains her speed and composure through turns.  
Sail close to the wind and use energy-based fighting tactics in battle, and you will outlast smaller opponents.

### Results

Le Fantastique may have a limited turn rate, demanding patience and careful thought to ship placement, but her graceful countenance is backed by a devastating broadside and a strong hull.

### Conclusions

This beautiful vessel with her “swordfish” lines and Mediterranean proportions has been much romanticised, but, being built specifically for handling quality for service in closed waters has compromised somewhat her utility in the Caribbean. Still, while Caravela Redondas overtake her downwind, and contemporary schooners sail rings around her, she still is a pretty ship.





# “HMS Barracuda”

## 22-gun Sloop-of-War



### Description

Small brig-rigged warship with single gun deck.

### Characteristics

She typically handles like a large brig, with good agility downwind and superior top speed for her lengthened, streamlined hull.

### Recommendations

These vessels have traded off some manoeuvrability in favour of power and speed; a single deck of uniform calibre artillery providing her a deadly, accurate broadside. Her increased running speed makes possible the use of energy-based, hit and run tactics.

### Conclusions

Resembling a larger sister of the snow-brig, Sloops-of-War are only similar to civilian and mercantile single-masted sloops by name.

Typically regarded as a small warship, she is deployed as a more economical substitute for a frigate in reduced-threat sectors. In practise her relative lack of agility is a non-issue; her improved top speed being a desirable trait; and if so fitted, a battery of [carronades](#) bestowing her with the best firepower per tonne ratio in the Royal Navy.



# “Falado”

## 22-gun Brigantine



### Description

Converted “hermafrodita” brig, partially fore-and-aft rigged.

### Characteristics

The Brigantine's advantage of being easier to sail upwind is counteracted by her reduced running speed. Her increased manoeuvrability however, can be a crucial asset in littoral warfare, or in close range combat as favoured by Spanish naval operators.

### Recommendations

Despite the fitting of additional jibs, blinds and stays, the loss of sail area compared to a full brig-rigged vessel was never fully remedied. Despite this and reduced downwind performance, she excels against agile prey, at least in theory as most Caribbean captains regard the loss of top speed as an unacceptable compromise. This however does depend on individual masters' preferences and local sailing conditions.

### Conclusions

She resembles a Sloop-of-War with a hybrid rig; favoured by Mediterranean pirates and regarded by American sailors as a “hermaphrodite brig”. Operators requiring better than average upwind performance, I.e. Bermuda to North American trade routes, will favour this type of rig. The few masters of Xebecs, or other Mediterranean rigged vessels like the Caravela Latina may find fancy in this hull and rigging combination, frequently modifying European pattern vessels to “hermaphrodite” rigs.



# “Mistique”

## 24-gun Xebec



### Description

Lateen-rigged vessel of Mediterranean origin.

### Characteristics

Xebecs are some of the fastest ships sailing against the wind, their narrow hulls and large sailplans giving them potential tremendous speed and agility.

### Conclusions

These ships are rarely encountered outside of the Mediterranean and Indian Ocean theatres but were prized for their narrow hulls and broad beams giving them a high speed and large deck area. Well armed with cannon, they are formidable privateers able to outmanoeuvre and outfight larger vessels.

While schooners are faster, xebecs are more resilient and offer greater capacity; this advantage is offset by the large hull size and sail plan which is both historically more difficult to manage and offers little redundancy to battle damage. For this reason, xebec privateers prefer to engage the enemy at close range in order to control the engagement.

This guide intentionally omits the 'Swordfish' and 'Dolphin' class privateer Xebecs which are custom-built for heavier armaments, enlarged rudders and greater deck capacity.





# “Coeur D'or”

## 14-gun Frigate Transport



### Description

Decommissioned Navy frigate sold to the breakers at the end of her operational life; some of these elderly vessels were subsequently rebuilt and sold to serve the civilised world's vast merchant fleets.

### Characteristics

With the removal of most of her military burden, these old ladies dance better than the hapless barely floating bathtubs called naval warships today. They are regarded as prized assets and are some of the smallest merchantmen rated for oceanic bulk cargo carriage.

### Recommendations

These vessels see heavy use in dangerous waters where civilian designs are not adequately durable. Their decks have been reinforced to support large palletized cargoes and as a side effect, these ships can still support naval cannon albeit in much reduced numbers; all gunports had been sealed off for interests of seaworthiness and increased hold capacity.

### Conclusions

Of deplorable appearance, these ships can sometimes be gotten for a penny off the resale market. Some indeed are reputed to “have timbers so soft, you could sink your finger into them”, others were either decommissioned with plenty of hull life remaining due to obsolescence, or had been rebuilt by their new private masters.

The latter are rare and very valuable vessels, often seeing action as privateers or vigilantes wielding a quartet of devastating 24 pounders on each broadside, sailing with a massive “boarding army” in their capacious holds. These “Assault Frigates”, as they are known today, have apparently not forgotten their military heritage, engaging pirates on the high seas and taking prizes from enemy powers in turn.



# “Bayonnaise”

## 30-gun Corvette



### Description

Ship-rigged, flush deck light warship. She is related to the [Sloop of War](#).  
(Corvette is a French Navy term used from the 17<sup>th</sup> Century onwards)

### Characteristics

For all purposes these ships are similar to ship-rigged sloops-of-war, their low centre of gravity and lengthened hull affording them superior sailability over less efficient designs.

### Conclusions

Dedicated warship hulls, no matter their age, are highly prized for privateering operations; they were built to military specification and are eager to retrace their heritage with a set of new cannon and an aggressive crew.



# “Vogelstruys”

## 20 gun Fleut



### Description

Ship-rigged, shallow draft cargo vessel unique to Dutch shipbuilders.

### Characteristics

Like all large ship-rigged vessels, the Fleut is slow and ungainly. Her small deck area, humongous cargo capacity and docile sailing characteristics however make for a very efficient trading vessel.

### Recommendations

Long regarded as large slow targets, fleuts are no match for serious privateers in an all out gun battle. However their shallow draft, compulsory for navigating home waters, provides good manoeuvrability and their light defensive armament may be rapidly fired by inexperienced crews in times of need.

### Conclusions

Not all captains require massive firepower and a ship that covers 400 miles a day. Indeed, the engineering required for such feats usually disregard all practicality. The fleut is and was directly responsible for Dutch economic superiority over the centuries, moving large cargoes at a fraction of the cost necessary to run a traditional galleon or foreign merchantmen.





# “Gerechtigheid”

## 30-54-gun Fleut-of-War



### Description

Offensively-armed merchant vessel.

### Characteristics

As an armed merchant cruiser, she converts cargo capacity into combat capability.

### Recommendations

Fleuts-of-War are a remarkably convenient use of the mass produced and efficient Dutch cargo vessels plying the world. The ship's good handling qualities and large capacity serves her well as an artillery platform, but does not change the fact you're still sailing a large and ungainly merchant vessel against foes by today's standards, likely to be far faster and more heavy armed.

### Conclusions

Analogous to common Dutch practise in the Baltic, these armed merchants have been rapidly pressed into service as trade security vessels in response to widespread piracy in the Caribbean. Private owners also make modifications on a regular basis to increase survivability against enemy attack. They may also be operated like commerce raiders, relying on disguise and “innocent” appearance to surprise an overconfident hunter or take an unsuspecting prize.





# “Kalmar Nyckel”

## 18-26-gun Pinnace



### Description

Large, ship-rigged merchant vessel.

### Characteristics

A Dutch innovation from the 17<sup>th</sup> Century, trade pinnaces are larger and sturdier than fleuts; their sailing characteristics are little to comment about, being generally similar to all other large ship-rigged vessels.

### Recommendations

Large vessels as these represent a large investment and must be prudently managed to ensure profitability. Variants have been outfitted with considerable cannon armament for military roles.

### Conclusions

As with fleut ships, the pinnace is an easygoing, very large trading vessel designed with economy over performance. While several armed examples were deployed offensively, they were likely acts of desperation as their lack of performance and slow handling are a liability.

Which is not to say ships like these are “bad”. Our needs as privateers are simply different from that of a corporate fat cat.

This guide omits the War Pinnace class intentionally; you can draw similar conclusions on their characteristics as the Fleut-of-War.





# “Golden Hind”

## 30-gun Elizabethan Galleon



### Description

Ship-rigged transoceanic vessel of English origin.

### Characteristics

Significantly smaller than their Spanish counterparts (Sir Francis Drake's [Golden Hind](#) displaced just 300 tons with 14 guns), English galleons are consequently far handier. This lack of size ([Manila galleons](#) displaced up to 2000 tons) did not stop them from circumnavigating the world and engaging in acts of “piracy” on the way.

### Conclusions

Their small size and admirable manoeuvrability makes these “little” ships more practical for littoral operations; many were called upon to defend their nation's sovereignty and wielded devastating 32 pounder demi cannon, others, attempting to compete with more modern ship designs such as the Espanola class fast cruisers, modified the traditional galleon designs accordingly, in effect inventing today's trends in naval architecture.

This guide omits the Elizabethan War Galleon and Fast Galleon classes intentionally.



# **“Santa Rosa”**

## 32-gun Caravela



### Description

A classic Hispanic vessel from the Age of Exploration.

### Characteristics

A small, relatively manoeuvrable vessel, durable but have outdated hydrodynamics. There exist two main types of Caravela, Latina (lateen rigged, pictured), and Redonda (square-rigged). They have small rudders by modern standards making them difficult to handle, as the helm provides little feedback.

### Recommendations

Latinas have greater manoeuvrability and the ability to sail close to the wind, at the expense of running speed. Stays should be installed on the Redondas as they can be difficult to handle against the wind.

### Results

By retrofitting caravelas with modern ship- or hybrid rigs, their usability has improved tremendously. Unfortunately the rudder issue cannot be helped due to these ships' dated design.

### Conclusions

While today's captains favour the schooner for her easygoing manner and low crewing requirements, the Caravelas are cheaply available, and offer a spacious hold and is the smallest vessel type with multiple gun decks. They are however rather easy targets for pirates, not helped by the slow responding helm.



# “Nuestra Senora de Atocha”

## 38-gun Manila Galleon



### Description

Very large ship-rigged vessel, displacing up to 2000 tons.

### Characteristics

As oceanic sailing vessels, the huge Manila Galleon offered unparalleled stability and humongous cargo capacity. They were known to carry more than a thousand passengers and crew along with a massive manifest.

### Conclusions

Unless you were planning on moving entire towns or shipping a colony's yearly produce back to the Empire, these ships are usually way too large to be practical in the Caribbean. As colonial transports, these gigantic ships built by armies of skilled craftsmen were reused in voyages of war and trade for generations.

Galleons were however, very versatile vessels with a mighty broadside of demi cannon (32 pounders). In wartime, Spanish galleons were almost “unsinkable” and their ordinance utterly devastating in a general engagement. Unfortunately, their poor manoeuvrability makes them little but sitting ducks for fast sailing ships favoured by the English.

Their only recourse was to sail resolutely on whist aiming to outlast the enemy. In the absence of large warships, battle-equipped galleons were the next best answer.

This guide omits the War Galleon class intentionally.



# **“Espanola”**

## **36-gun Spanish Fast Galleon**



### Description

Ship-rigged merchant, refinement of Galleon type vessel.

### Characteristics

Excellent running characteristics, average performance in close reach, but dangerously low freeboard below No. 1 gun deck leading to potential flooding hazards and/or reduced combat capability in sea states 3 and above. Helm is slow to respond, extremely large turning radius from ineffective rudder. Very stable gun platform.

### Recommendations

Reduce displacement with the intention of increasing freeboard. Improve rudder control.

### Results

Waterline lowered; removal of nonessential decorations and swivel guns of questionable effectiveness reduced significant topweight. Strengthened rudder chains and increased-area hydroplane allows much improved helm response at speeds above 8 knots.

### Conclusions

A capable fast merchant and Hispanic answer to the British East Indiaman. Considerably less vulnerable to piracy than her forerunners, the modern fast galleon wields a frigate's broadside at a fraction of the cost.

Espanola has seen naval patrol service off the Cuban coast and is renown for surprising smaller and supposedly more agile foes by rapidly slewing her rudder into “emergency deflection” at speed. This requires the strength of at least 4 men and 7-10 seconds.

Care should be exercised with such “knuckle” manoeuvres as directional control may not be easily regained due to vessel's bulk.



# “Wageningen”

## 32-gun Light Frigate



### Description

Ship-rigged, single-deck principal battery warship rated for 32 guns.

### Characteristics

A “frigate” was historically conceived by the [Dunkirkers](#) in the late 16<sup>th</sup> Century as a short ranged raider. The Dutch Navy, in order to protect the [Republic](#)'s sovereignty and shipping, the first true ocean-going, battle-capable frigates in response, before introducing a smaller, more handy variety as shown here towards the end of the [Eighty Years' War](#).

The Light Frigate boasts most of her larger sister's capabilities. Her shorter hull has reduced her running speed somewhat, but this capable pirate hunter has gained even more manoeuvrability as a result.

### Recommendations

She may be handled like any other frigate-type, ship-rigged vessel, and proves exceptionally deadly where manoeuvrability comes into play. She is no slouch in the offense either.

### Conclusions

While most would correctly relate power to size of the hull, and number of cannon, all that is moot where a large ship lacks the agility to bring her armaments to bear on her intended foes, which in this case tend to be small and very agile.

In this regard, while operating in littoral waters, the Light Frigate's combat power is equivalent or greater than that of larger battle frigates thanks to her increased agility.





# “Edam”

## 42-gun Frigate



### Description

Ship-rigged, single-deck principal battery oceanic warship pioneered by the Dutch.

### Characteristics

The frigate's deep draft and large sail area bestows her with great speed and manoeuvrability with which to bring her crippling broadside to bear.

### Recommendations

She may be difficult to sail in tack but she can build up significant momentum while her bows are pointed downwind. That kinetic energy can be used to change the tides of an upwind battle by coasting into the wind with sails [furled](#), subsequently enabling the frigate to run down her opponent at high speed parallel to the wind, instead of sailing ineffectively against it.

It should be noted that “forcing” a ship past her upwind sailing envelope should only be attempted at speed, lest steerageway be lost.

### Conclusions

Large, square-rigged warships are traditionally regarded as slow and hopeless in seakeeping. The frigate isn't included in this stereotype. While arrogant captains of schooners and brigs have long boasted of outmanoeuvring warships as these in their flimsy buckets, their smug grins are usually the first to disappear when they observe their shot bouncing off the frigate's tough hull bearing down on them at an “impossible” rate...





# **“HMS Surprise”**

## **42-gun Flush Deck Frigate**



### Description

Advanced frigate, possibly [razeed](#) from a larger lineship.

### Characteristics

In later period of the Age of Sail, fore and aft castles were done away with completely to reduce topweight and thus improve sailing characteristics. As many lineships became obsolete from old age or were unable to sail in the line of battle against the new battleships of gargantuan size, they had their top decks removed.

This in essence created a very large and powerfully armed frigate with her heavy armament concentrated on a single deck, giving a much desired low centre of gravity. This transformed an obsolete ship of the line into a formidable warship.

### Conclusions

Faster and more agile than traditional frigate-type vessels, her trump card lay in her broadside of battleship-scale 32 pounders.

By comparison, older frigates carried 18 pounders due to topweight issues; some reinforced designs sporting 24 pounders.





# “USS Constitution”

## 52-gun United States Navy Heavy Frigate



### Description

Advanced American 44-gun heavy frigate. (44 by classification, 52 actual)

### Characteristics

This immense flush-deck frigate, displacing 2,200 tons, benefits from vast sail area and an extremely deep keel giving superb seakeeping ability. Her hull was built to a thickness of 21-25 inches in an age where 18 inches was the norm; durability is exceptional as a result of her advanced construction technique.

### Recommendations

Constitution's superior hull and heavy broadside is nothing short of devastating; engaging at point blank range is the tactic of choice as it prevents the enemy from firing into the vulnerable rigging ([USS Constitution vs HMS Java](#)).

### Conclusions

Captains of Royal Navy frigates were ordered not to engage American frigates one on one for a very good reason. “Old Ironsides” wields a ship of the line's broadside coupled to a heavy frigate's manoeuvrability. Her exceptionally strong hull proved almost immune to English cannon fire even at pistol range.

USS Constitution's hull has survived more than 200 years and remains in active duty today.

New Horizons simulates as well the [HMS President](#) and the fictional Acheron from [Master and Commander: The Far Side of the World](#).





# “Earl of Abergavenny”

## 52-gun East Indiaman



### Description

Ship-rigged merchant with very heavy armaments.

### Characteristics

East Indiamen combined the firepower of a 4th-rate ship of the line, with the cargo capacity of a medium merchantman. They did not offer any speed improvements over contemporary freighters due to dated hydrodynamics.

### Conclusions

Designed to traverse hostile or pirate infested waters, East Indiamen brought home valuable cargoes from the Far East to make the [E.I.C](#) one of the greatest mercantile empires in its time. They may not offer the best sailing characteristics but they were well armed enough to deter all but the most well equipped adversaries.

Unfortunately this heavy armament comes at a price of both sailing quality and cargo capacity. This limits their cannon armament to 18 pounders at most. These vessels were also commandeered by the Navy in times of need to serve as fast transports and 4<sup>th</sup> rate lineships.

Another issue with merchant vessels with large numbers of guns was this question: Did you have enough crew to operate all the guns, and if so, how does this affect your profitability? Regardless of this, the sight of that many gunports (some merely for show) does have a psychological impact on a prospective foe.





## “4<sup>th</sup> Rate” Ship of the Line 44-60 Guns



These represent a class of older lineships that have become too weak to stand in the line of battle, and were consequently relegated to convoy duty or armed transport assignments. Though far from their home empires, these ships represent a formidable Imperial presence in the Caribbean.

Besides older, slab-sided warships derived from Elizabethan era galleon technology, the Fourth Rate classification also applies to larger battle frigates (such as [HMS President](#)), East Indiamen requisitioned for military service as well as a selection of armed merchantmen and galleons.

Like all large square-rigged warships, she handles in a decidedly “slow and regal fashion”.

## “3<sup>rd</sup> Rate” Ship of the Line 64-80 Guns



The Third rate represents the next tier in naval capital ship design, boasting double gun decks and significantly increased firepower. These are regarded as “optimal” large warships; Second and First raters may outmatch them easily with massive firepower but their ungainly stature and high operating costs have limited them to [in-ordinary](#) status in home waters.





## “2<sup>nd</sup> Rate” Ship of the Line 90-98 Guns



Second Rate battleships were regarded too valuable to risk on independent long range missions but were deployed as overseas flagships. These are the smallest of the 3-decker capital ships.

## “1<sup>st</sup> Rate” Ship of the Line 100+ Guns



First-rates are the epitome of scale in Age of Sail naval engineering, displacing well over 2000 tons and housing close to a thousand crew.

Being too ungainly to sail the high seas efficiently, too valuable to risk on overseas assignments, most spend their lives basking in ordinary, to sail forth in times of dire need to defend their home nations.





# “USS Hudson”

## 44-gun U.S. Navy Experimental Steam Frigate



This ship is the first implementation of steam propulsion in the New Horizons fictional universe, intended as a “what-if” demonstration of the advantages afforded by wind-independent propulsion derived from early high pressure [multiple-expansion reciprocating steam engines](#).

Due to limitations in the Pirates of the Caribbean game engine, we are unable to simulate in full detail the engineering aspects of actual steam engines; this vessel performs very much like a frigate with relaxed points of sail limitations and can sail faster than the wind in broad reach (simulating combined wind and steam power at all times with a drastic penalty to sailing downwind due to poor seakeeping).

USS Hudson is our U.S. Navy's experimental “trump card” conceived during the fledgling nation's struggle for independence. Confronted with French and English privateers preying on American shipping at every opportunity, the Navy seeks to even the odds with a focus on superior warship design and technical innovation.

The Hudson class steam warship, derived from the proven [Raritan class](#) heavy frigate (itself an improvement over the [original 6 frigates](#)), is one such proposal.

Displacing over 3,000 tons from the addition of heavy steam machinery and untested high-impulse paddlewheels, the Hudson is severely overweight and intended only for littoral anti-piracy operations; her low freeboard making her gun deck unusable on the high seas, and the experimental paddlewheels vulnerable to storm damage.

Despite this, USS Hudson more than pays off her worth in taxpayers' money for being able to run down with ease previously “uninterceptable” privateer craft sailing against the wind.

