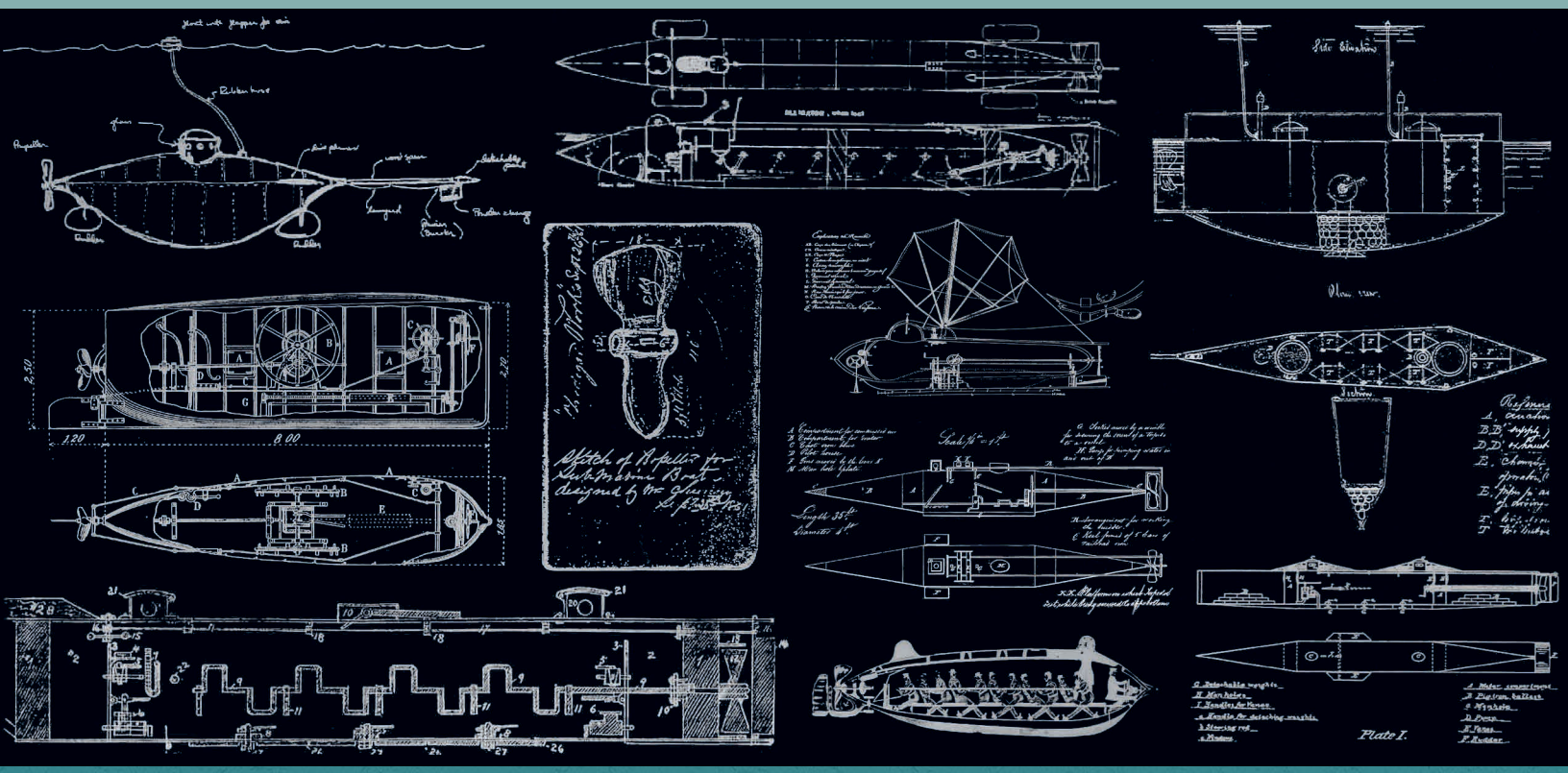
Infernal Machine
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How To Use This Manual

This is a supplement to the Rule Book, containing clarifications and elaborations, and especially historical and hydronautical information that would only burden that other booklet. It contains entries on individual game components which may prove helpful as you decipher game rules and procedures.

Glossary

Here you will find brief explanations of several common game terms and concepts.

Add: Acquire, increase, expand. If **funds**, increase your funds by the stated amount. It is now your money to spend (slide the Funds marker(s) on the Funds Track to record the increase). If a **card**, draw the top card of the deck (that card is now in play). If a **cube**, place it in the Fate Pool. If a **boat tile**, place it next to a boat tile you already have (it increases the size of your fishboat). If a **mechanism**, place it on a boat tile (you may rearrange boat tiles and mechanisms when you add a new component to your fishboat). If you don't yet have a boat tile, keep the new mechanism in your shop and combine it with new parts as you acquire them.

Busy:  24 During a Mission, a crewman becomes busy when you assign him an order (steering, mechanical, repair). If panicked, a crewman is considered busy, which means he can't perform an order. If fatigued, a crewman MAY perform an order (fatigue does not render a crewman busy).

Commissioned: Enrolled in and holding a rank in the US Navy. During a USA Campaign, the player begins uncommissioned. They may achieve commissioned status by successfully performing a Commission action 51. Once commissioned, the fishboat and personae are considered to be in the US Navy: Sailors may be recruited, and parts may only be added to the fishboat via a Purchase Order. Commissioning does NOT redesignate Journeymen, Mechanics, and Investors as Sailors (Military Recruit 60).

Crewman: Persona card assigned to the fishboat during a mission. You may use the capabilities printed on the top portion of the card.

Debt: 46 You may not spend more money then you currently have, EXCEPT during the Fortunes of War Phase and the Time Phase. These exceptions are necessary because an event or Fortunes of War result may impose a cost you can't pay. When that happens, keep track of the amount you can't pay (use the red-side of the Funds markers). During the Income Phase and possibly the Action Phase (Investment action), money you gain must pay the debt before you spend money. That is, when on its red-side, signifying debt, money gained reduces debt. When debt is reduced to zero, money you gain thereafter may be spent. Once in debt, you may remain in debt. You are not obligated to reduce debt to zero. The funds you have, or debt, will be a factor in determining the campaign outcome (see Outcomes Step 3 in the Almanac).

Drift: This can refer to Drift Direction, Drift Intensity, and the Navigation result called Drift.

Drift Direction: 17 The direction water is moving, signified by the Drift Direction marker (Charleston, Training, and Mobile mission boards), or by the arrows connecting positions (New Orleans and Richmond mission boards). During the Navigation Phase of a mission turn, the fishboat may move with or not with the Drift Direction. The Navigation Card's table is organized by the fishboat's movement compared to the Drift Direction (with or not with 27; if not moving at all the fishboat is "not with").

Drift Intensity: 17 A measure of the speed and turbulence of the water (Strong, Weak, Calm). The Navigation Card's lower register will have effects that are triggered by certain drift intensities. The Tow Check Table also factors Drift Intensity into its results.

Drift - Navigation Card result: 29 Indicates that the fishboat is temporarily moving out of control and perhaps dangerously. The effect of this result depends on the Drift Table printed on the mission board.

Funds: The amount of money you have, as recorded on the Funds Track 39.

Gain: Synonymous with add (see above).

Incapacitation: 23 An incremental measure of the

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fishboat's hydronautical performance (does NOT apply to engine-propelled fishboats). When all crewmen in a space are busy or fatigued, that space is incapacitated. Each incapacitated space imposes a temporary Power Grade shift to the right (on the Power Grade gauge located on the Mission Board). Incapacitation is not permanent; it may be removed when one or more crewmen in the space are no longer busy or fatigued. This can happen as a result of Rally, Fresh Air, or Morale Boost. Also, an order assigned to a crewman is often temporary (repair, for example), which means such an order could make a space temporarily incapacitated while the crewman is busy with the order.

Modifier: Either adds to or subtracts from the number rolled on one or the sum of two dice. A +1 modifier adds one to the number rolled (for example, if you roll a '5', a +1 modifier increases that number to a '6'). Modifiers are cumulative (for example, if there is a +1 modifier, a +2 modifier, and a -1 modifier, the total modifier is +2).

Pay: During a campaign, decrease your funds by sliding the Funds marker(s) on the Funds Track. You may not spend more money than you have recorded on the Funds Track. Exception: the Fortunes of War Table and possibly an Event may impose a cost that must be paid. If you don't have the funds to pay that cost, you must go into debt (for Debt, see above).

Recycle: Means temporary removal of a game component, to be reused later in the game. If a cube, set it aside (it is no longer in the Fate Pool). If a card, place in the discard pile (when you run out of cards, reshuffle the discard pile to make a new deck). If a boat tile or mechanism, or a marker, set the component aside for use/purchase later.

Remove: The component is set aside and may NOT come back into play. This usually applies only to persona cards.

Slack Water: The change from ebb tide to flood tide or vice versa has a period of time when the tide current is neither ebb nor flood. This condition is termed Slack Water, and is depicted in the game by the Slack Water card in the Navigation Card deck. Slack Water only applies if your Mission is on the Charleston, Mobile or Training Mission Boards. It is ignored on the other boards (do not use the Slack Water card there). *The Mississippi River depicted on the New Orleans mission board and the majority of it on the Baton Rouge board was tidal, and an earlier version of this game allowed for a slack water effect there. We deleted that effect to make the game simpler (one fewer rule), although we realize that a hand-cranked submersible would be vulnerable to tidal action on that river. The effects were less severe than on the sea-coast, and not as easy to capitalize upon, which is why we felt we could ignore its presence in this game.*

Slack Water Setup & Effect: During Mission setup, when you shuffle the Navigation Cards, add the Slack Water card to the deck, shuffling it in with the rest. Alternatively, you may place 2 Red cubes in the Fate Pool, allowing you to choose where in the Navigation Card deck the Slack Water card will be placed. It can go anywhere in the deck. *This simulates the careful planning for a Mission. The crew knew that by careful observation of the tides and sea conditions, they could gain a boost of speed leaving base on an ebb tide, timing their arrival on the target to coincide with the condition of Slack Water, and then retire from the battle area while coasting on a flood tide back to base. This practice greatly saved on crew fatigue. You can expect the fishboat to traverse the Mission Board at a rate of one position each turn, and you will be drawing a Navigation Card on each of those turns.*

Seaworthy: Your fishboat is seaworthy when it has a prow, a stern, a steering link, and a propeller. Also, if the fishboat does NOT have a boiler engine, it must have at least one Hatch mechanism (if it has a boiler engine, it may NOT have a Hatch).
A fishboat must be seaworthy in order to perform a Mission action during the campaign. For the commissioned US player, if not seaworthy, Assignment 62 is automatically Washington 46. If no crewman has the Steering skill , a Mission can still be performed but the fishboat won't be able to move from one position to another.

Shop: Space below the Gauges Board (or near it - set aside space on your game table). Place the parts of your fishboat there, as well as persona cards. It is the space on your game table where your fishboat is built, where you will assign crew to its spaces during Mission setup, and where they will experience fatigue and panic during a mission.

Treasury: Funds. The money you have.

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Parts

This section of the Cyclopedia presents a list of boat tiles, mechanisms, and weapons.

Boat Tiles

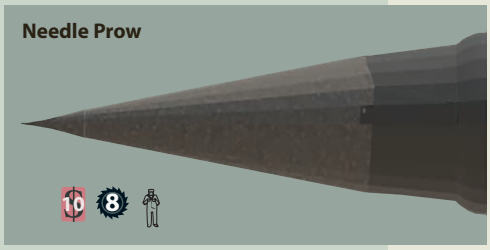
A boat tile is a space in your fishboat. Each is rated for weight (zero to three) and crew capacity (zero to three). A "prow" is the frontmost tile (left end) and a "stern" is the rearmost (right end). Only one of each is permitted, and a seaworthy fishboat must have one of each. A "section" goes in-between prow and stern. A seaworthy fishboat may have one or more sections, or none (a very small fishboat).

Engine Limit: A maximum of one Engine is allowed. If propelled by engine, no more than **five** boat tiles are allowed.



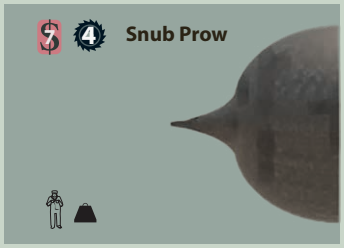
Chisel Prow

The front is pinched, allowing the fishboat to cut through the water. Crew capacity of 2 and weight of 1.



Needle Prow

The front is tapered as close to a point as nineteenth century engineering allows, enabling the fishboat to pierce the water. This hydrodynamic benefit comes at a cost in space. Crew capacity of one but weight of zero.



Snub Prow

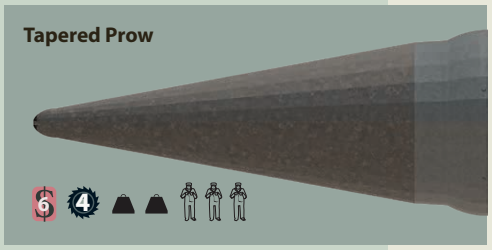
A short, abrupt, and pointed prow. Not much room for crew. Crew capacity of one and weight of 1.



Sturdy Prow

Heavy and durable, with room for a crewman. Expertise level required is high. Crew capacity of 1 and weight of 2.

Unique Benefit - Sturdy Engineering: During a Concussion Check, add +1 to the die roll 7. The Concussion Check modifier applies to all weapon types (Spar, Tow Cord, and Diver). *This component provides widespread benefit to the fishboat as a whole. It also represents extra plating and sturdy joints even beyond the prow.*



Tapered Prow

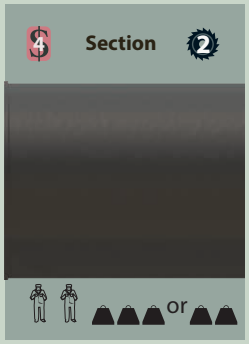
The front is tapered but ponderous, allowing the fishboat to pierce the water but not as hydrodynamic as the Needle Prow. More space for crewmen. Expertise level is low. Crew capacity of 3 and weight of 2.

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Section

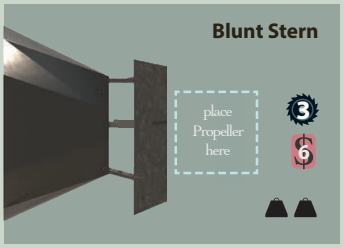
This tube of iron is neither a prow nor a stern, so it must sit between other tiles. A fishboat may have one or more Sections, or none. Historically, most were between 40 and 50 inches in diameter. Crew capacity of 2 and weight of 2 or 3.

We expect the player will naturally choose Sections with weight of 2, adding the heavier Sections only when the lighter tiles are already in use. This means a long fishboat will be heavier/less hydrodynamic.



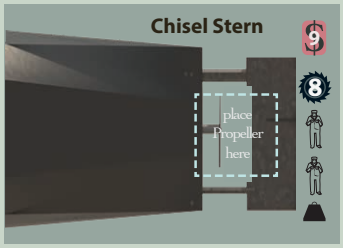
Blunt Stern

Inexpensive and low-skill required. Its 2-weight is due primarily to its poor hydrodynamic properties and not to its actual weight. It has a crew capacity of zero.



Chisel Stern

The aft end is pinched, allowing the fishboat to pass through the water easily. Crew capacity of 2 and weight of 1.



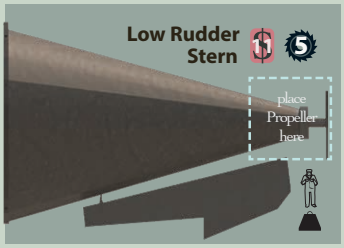
Long Stern

More room for crewmen but at the expense of weight. Crew capacity of 3 and weight of 2.



Low Rudder Stern

The aft end is conical with the rudder hanging beneath, not on axis with the propeller (relatively low expertise required). Crew capacity of 1 and weight of 1.



Tapered Stern

Propeller and rudder axial with crankshaft. Crew capacity of 2 and weight of 1.

This boat tile is considered to be more hydrodynamically efficient compared to Blunt Stern and allows for more space compared to Low Rudder Stern.

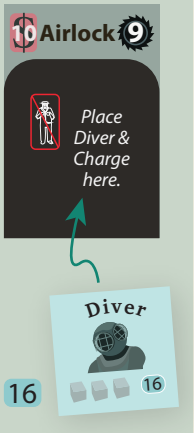


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Mechanisms

A mechanism is a game component that is placed on top of a boat tile. It adds functionality to the fishboat. To function, some mechanisms must have an operator with a Mechanical Order 24 in or adjacent to its space. Some Mechanisms are large and reduce its space's Crew Capacity . A space's Crew Capacity may not be reduced to less than zero due to the Mechanisms in it.

icon indicates Crew Capacity reduced by 1



Airlock

The Airlock is a device used to convey a Diver carrying a torpedo charge out of the fishboat to deliver, then return and detonate, the charge against a target. The Airlock can be added to any boat tile that currently has a Crew capacity of 1 or more, but uses one crewman's worth of space (it reduces that capacity by 1). To deploy the Diver, the fishboat must be at the lowest possible elevation allowed in its Position on the Mission Board. Fishboat must perform a successful Target Check 36 and then enter the Tactical Board. You may deploy the Diver during the Move Phase 8.

In history

The principle of the airlock has been used since antiquity to enter and then leave from diving bells for salvage operations on the sea or river floor. The advent of advanced hydraulics and hydrological science saw development of separate on-board chambers within a sub-surface boat (like the fishboat) that could be sealed with watertight hatches and used compressed air to counter the increase in water pressure at significant depths. In this game, the airlock's hatch is not represented by a separate component but considered organic to the mechanism (it does not count as a "hatch" for the purpose of Rally 33 or Escape 13). This was paralleled by development of better diving equipment using a pressurized air-delivery system to a helmet and waterproof diving suit. Though SCUBA diving has become more popular, today's helmeted and suited diver is still used for underwater salvage and other long duration dives like oil pipeline servicing and pearl harvesting.



Air Purifier

The Air Purifier keeps the air breathable: it gives you one Rally marker during the mission 33. However, it may only be added to the fishboat that has a Hatch, and it takes up a crewman-sized space inside the fishboat, so you will be short one crewman when your fishboat puts to sea. The Air Purifier may only be placed in a space that currently has a crewman capacity of 1 or more.

Air Purifier Malfunction 34

- X **1st marker**: adds a Red cube to the Fate Pool.
- XX **2nd marker**: adds a Panic marker to a crewman.
- XXX **3rd marker**: adds Red cube to the Fate Pool and a Panic marker to a crewman.

In history

The air purifier represented here was invented by French émigré Brutus de Villeroi for his shipwreck salvage business. It was a solution of soda lime (sodium oxide and calcium oxide) through which an endless roll of wool blanket cloth was drawn. The submarine's interior air was then blown by fans across the wet roll, "scrubbing" the "fouled air" of carbon dioxide, and allowing the submarine crew to re-breathe the same air over and over without collapsing from carbon dioxide poisoning. When the US Navy fired de Villeroi from the *USS Alligator* project, he took the secret of his air purifier with him, and the Navy was left with the more common snorkel to handle air exchange.

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Anthracite Coal



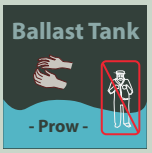


A fishboat burning Anthracite coal in its Boiler Engine 8 can ignore the Boiler Engine's Detection modifier. Place the mechanism on or adjacent to the Boiler Engine (it really does not matter where). The Anthracite coal marker is recycled after every mission.

In history

Bituminous coal, which was the most prevalent form of coal used by steam engines at the time, creates a thick black smoke when burned. Anthracite coal burns with less visible smoke. Anthracite coal mines were (and still are) located in Pennsylvania and England. Pennsylvania was enemy territory to the Confederacy, and England was charging a premium to ship their Anthracite coal via blockade runner to Confederate ports.

Ballast & Level Tanks









Ballast Tank: This mechanism may only be placed in a Prow space with a crew capacity of at least 1. It is a large mechanism, and so it reduces the space's crew capacity by 1. An operated Ballast Tank changes the fishboat's elevation one level, either from Surface to Awash, or Awash to Surface. It can't change elevation to Below Shallow or to Awash from Below Shallow.

Level Tank: You are not permitted to add a Level Tank UNLESS you already have a Ballast Tank. The two tanks may be added to the fishboat at the same time. This mechanism may only be placed in a Stern space (it does not reduce that space's crew capacity).

Ballast Tank & Level Tank: The Level Tank augments the Ballast Tank's capability. Besides changing elevation from Awash to Surface or vice versa, when the fishboat is equipped with both tanks, an operated Ballast Tank allows descent to Below Shallow from Awash, or ascent from Below Shallow to Awash (only the Ballast Tank must be operated for this; the Level Tank does not require an operator). The tanks can't change elevation lower than Below Shallow, and the one level limit remains in effect (i.e., the fishboat's elevation can't change from Surface to Below Shallow in one Mission turn).

Ballast Tank Malfunction

- ✕ **1st marker**: Your choice – add a Red cube to the Fate Pool or descend one elevation level (from Below Deep to Below Deeper, for example). If already at the lowest level, the fishboat Grounds 29 if you choose descent (either release Keel Weights 11 or the fishboat is Lost 13). Also, if you choose descent and the fishboat lacks a Level Tank, add a Panic marker to a crewman.
- ✕✕ **2nd marker**: Descend one elevation level and if the fishboat does not have a Level Tank, add a Panic marker to a crewman. If already at the lowest level in its position, the fishboat Grounds (either release Keel Weights or the fishboat is Lost).
- ✕✕✕ **3rd marker**: The Fishboat suffers a Leak 12. Each Malfunction after the 3rd also incurs a new Leak.

In history

The ballast tank had been in use by diving bells and shipwreck salvage platforms for several centuries. It works by pumping water in and out of a tank, thereby adjusting a fishboat's buoyancy. The pump can be operated by hand or foot. A level tank augments and stabilizes buoyancy and the operation of the ballast tank.

Advisory: Ballast Tank is the mechanism necessary to descend to Awash, but on its own, Ballast Tank can't dive the fishboat deeper. If you don't intend to reach Below Shallow or lower, no other mechanism is required. However, it is possible for the Drift result of Dive ↘ 29 to force a fishboat deeper, from Awash to Below Shallow for instance. In that case, without a Level Tank or Dive Planes, the fishboat can't climb to Awash and a Lost result is in its future.

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Dive Planes

This mechanism may be placed in any space, but in order to work, the mechanism must be operated by a crewman with Mechanical skill who is assigned a Mechanical order and be in the same space as the Dive Planes or adjacent to it. Also, to operate the Dive Planes, the fishboat must be no higher in elevation than Awash (Dive Planes can't be operated at Surface; to dive to Awash, you need a Ballast Tank 6). Also, to operate Dive Planes, the fishboat must have propulsion (it may not be Dead in the Water 21). Operating the Dive Planes can change the elevation of the fishboat by one level. Dive Planes are the only way a fishboat can submerge from Below Shallow to Below Deep (or access levels deeper than that).

Dive Planes come in two versions:
Being a clunky mechanism, standard Dive Planes add additional weight to the fishboat. Improved Dive Planes add NO additional weight to the fishboat. You do not need to add Dive Planes to the fishboat before adding Improved Dive Planes. There is no advantage to installing both versions on the fishboat, since only one level of elevation change is allowed per turn (even if you have both Dive Plane versions and a Ballast Tank).

Dive Plane Malfunction

X **1st marker**: Operator cannot be Fatigued. This means that the crewman assigned the Mechanical order to operate this mechanism may not have a Fatigue marker.

XX **2nd marker**: Jammed in the down position. If the fishboat's elevation is Awash or lower, the fishboat automatically dives one level each Navigation Phase. This dive happens regardless of Mechanical orders to the Dive Planes or the Ballast Tank. However, if at Surface elevation when this Malfunction happens, the fishboat may remain at Surface. Since only one level of change is permitted in a turn, while this mechanism has two or more Malfunction markers, there is no way to climb from Awash (or lower). This mandatory dive cancels operation of Ballast Tanks. Note that if already at the lowest depth allowed by its position on the Mission Board, the fishboat Grounds 29 (either release Keel Weights or fishboat is Lost 13 .)
Optional: Instead of the mandatory dive, you may perform Drift 29 (Navigation Card result; refer to the Mission Board's Drift Table). This is allowed only if the fishboat does not move to another position on the Mission Board during the Maneuver step of the Navigation Phase, and does not make a Target Check.

Dive Plane Repair

If Repairs are made to the Dive Planes while at Awash or Below depth, add one Red cube to the Fate Pool for each Repair marker removed. *The most common reason for malfunction is stickiness, some foreign material such as kelp or 'seaweed' has jammed the mechanism, and repair must happen outside the fishboat. Unless on the surface, that repair will be haphazard, or it must happen from inside, which could leave the crew skeptical that the job was done right.*

In history

Probably in the early 1800's, nautical inventors found a way to use horizontal planes to push the submersible vessel down as it was propelled forward, panels pitched up or down. Handling a single pair of Dive Planes required physical strength and a steady hand from the "Planesman" operator, whose job it was to adjust and maintain the pitch of the Dive Planes to prevent "porpoising" (rapidly changing height) when underway. Later models sported two pairs of Dive Planes placed on bow and stern. Precise control of Dive Planes has become a very exacting and rigorous task for today's Planesman.

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Engine (Boiler)

The Boiler Engine makes the fishboat a surface vessel (i.e., Surface is the only Elevation permitted). It relieves the crew of having to propel the fishboat by cranking (crew don't suffer Fatigue). It is placed on a boat tile and it reduces its space's crewman capacity by 2 (thus, it may only be placed on a tile with a Crewman capacity of 2 or more).

Propulsion: A Boiler Engine (aka Steam Engine) propels the fishboat by its engine instead of the crew's strength 20. In order to move during the Navigation Phase (Step 1 Maneuver 25), one crewman in its space or in an adjacent space is required to operate the Boiler Engine (Mechanical skill required as well as a Mechanical order 24). If not operated, the fishboat's temporary Power Grade is E, and Crank Intensity must be Easy.

Elevation Limit: A fishboat equipped with the Boiler Engine is limited to Surface elevation only, and may NOT have a Hatch, and may NOT change elevation. If forced to change elevation due to Drift, the fishboat capsizes and is Lost 13. During a Detection Check 35, it suffers a -3 die roll modifier due to smoke and noise (this modifier is cancelled by Anthracite Coal 6).

Fatigue: When a Fatigue marker comes into play (via Crank Intensity 26, or a Navigation Card result 27), place the Fatigue marker on the engine, and not on a crewman. Fatigue has no immediate effect, but Malfunction markers may not be removed from the engine if one or more Fatigue markers are in play. Repair 31 allows a crewman to remove one Fatigue marker. A Malfunction marker may be removed by a repairman in the same Repair Phase that another repairman removes the last Fatigue marker from the engine (this is possible with Teamwork 25).

Lost via Drift: During Step 3 of the Navigation Phase 29, a Lost result may be converted to a Drift result by recycling 2 Black cubes or 4 Red cubes from the Fate Pool. *This represents the crew's success at restarting a swamped engine.*

Boiler Engine Malfunction

✕ **1st marker**: May not select Strain as the fishboat's Crank Intensity 3 7 11 26. You may select Easy or Full.

✕✕ **2nd marker**: Add a Panic marker to a crewman and the engine is now inoperable (i.e., the fishboat can't move on its own, it is Dead in the Water 21). It may not move during the Maneuver step of the Navigation Phase 25, and in Step 3 (Navigation Card Effect) 27 you must use Power Grade "E". Crank Intensity is locked on Easy. Target Check is not allowed 9, nor may it rotate to exit the Tactical Board 36.

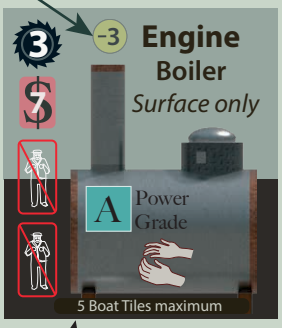
Boiler Engine Repair

One Repairman may Repair the engine (one Repairman recycling one Malfunction marker.) If the engine has one or more Fatigue markers, Repair recycles a Fatigue marker instead (one Repairman recycles one Fatigue marker). A Malfunction marker may be recycled simultaneously with a Fatigue marker (by two Repairmen if you have the Teamwork Skill 25) if there are no other Fatigue markers on the engine.

In history

Thomas Newcomen in 1712 helped drain tin mines in Cornwall, England with a steam engine, improved to its current configuration in 1775 with James Watt's addition of a separate steam condenser. By the 19th Century, the Confederacy's successful use of steam power in small boats created the class of torpedo boat (*CSS David*), as well as the

Detection Check modifier



Fishboat can't have more than five boat tiles

No Incapacitation: If the fishboat has an Engine, do not mark spaces Incapacitated 23. Crew do not suffer Fatigue, and Busy (from Panic and Orders) has no effect on Power Grade.



Can I assign a Repair order even when the Engine doesn't have a Malfunction or Fatigue marker? Yes. Since an Engine can suffer Fatigue during the Navigation Phase, you may anticipate this (or a Leak) by assigning the Repair order even when the Engine is free of Fatigue and/or Malfunction.

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Engine (Magnetic)

Place the Magnetic Engine on a Section (or on any boat tile that has a crewman capacity of 2 or more). It reduces its space's crewman capacity by 2.

Training Requirement: You may not acquire a Magnetic Engine unless the Training Level is 1 or higher 43 .

Propulsion: The Magnetic Engine propels the fishboat by its engine instead of the crew's strength 20 . In order to move during the Navigation Phase (Step 1 Maneuver 25), one crewman in its space or an adjacent space is required to operate the engine (Mechanical skill required, and he must have a Mechanical order 25). If not operated, the fishboat's temporary Power Grade is E, and Crank Intensity must be Easy.
Elevation unlimited: The Magnetic Engine may operate at any elevation. Unlike the Boiler Engine, it must have a Hatch to be seaworthy.

Fatigue: When a Fatigue marker comes into play (via crank intensity 26 , or a Navigation Card result 27), place the Fatigue marker on the engine, and not on a crewman. Fatigue has no immediate effect, but Malfunction markers may not be removed from the engine if one or more Fatigue markers are in play. Repair 31 allows a crewman to remove a Fatigue marker (one may be removed per repairman). A Malfunction marker may be removed by a repairman in the same Repair Phase that another repairman removes the last Fatigue marker from the engine.

Magnetic Engine Malfunction

X **1st marker**: Add a Panic marker to a crewman. May not select Full or Strain as the fishboat's Crank Intensity 3 7 11 26 . You may select Easy.

XX **2nd marker**: Add a Panic marker to a crewman, and the Magnetic Engine is now inoperable (i.e., the fishboat can't move on its own, it is Dead in the Water 21). It may not move during the Maneuver step of the Navigation Phase 27 , and in Step 3 (Navigation Card Effect) 25 you must use Power Grade "E". Crank Intensity is locked on Easy. Target Check is not allowed 36 , nor may it rotate to exit the Tactical Board 9 .

Magnetic Engine Repair

One Repairman may Repair the engine (one Repairman recycling one Malfunction marker.) If the engine has one or more Fatigue markers, Repair recycles a Fatigue marker instead (one Repairman recycles one Fatigue marker). A Malfunction marker may be recycled simultaneously with a Fatigue marker (by two Repairmen if you have the Teamwork Skill 25) if there are no other Fatigue markers on the engine.

In history

The *H.L. Hunley's* engineers sought to build this engine but soon gave up. By using an electrical motor designed and built by England's Michael Faraday, a serviceable propulsion system could be developed to power an underwater craft. Silent in operation and powered by Leyden jars, an early form of storage battery hooked together in series, by the First World War the magnetic engine would become practical.

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Gear Box

The Gear Box improves the Power Grade 20 by one shift to the left on the Power Grade gauge. Thus, if the fishboat has a Power Grade of B, adding the Gear Box would improve its Power Grade to A. If the Power Grade is already at A, Gear Box has no effect (but it can still suffer Malfunction).





Gear Box Malfunction

- X **1st marker**: Add a Panic marker to a crewman.
- XX **2nd marker**: Degrade the base Power Grade 20 by one (e.g., from A to B). If already at E, there is no additional effect. Note that this is not temporary, it is a permanent shift to the base Power Grade.
- XXX **3rd marker**: Degrade the base Power Grade 20 by one (e.g., from B to C). This is in addition to the previous degradation that happened when thesecond Malfunction marker was added to the Gear Box. If the Power Grade is already at E, there is no additional effect. Note that this is not temporary, it is a permanent shift to the base Power Grade.

Gear Box Repair

The Gear Box may NOT be Repaired during a Mission. This is why Power Grade reductions affect the base Power Grade and are not considered temporary adjustments to the Power Grade.

In history

At least as old as waterwheels and windmills, this converts the speed of a slow watercourse or breeze to a quicker one. By the nineteenth century, a gear box was a finicky piece of equipment. When free of malfunction it provided an advantage in running a steel mill, harvesting crops, or getting anywhere by steamship or by train.

Hatch

A Hatch allows access and egress from the interior of the fishboat. Its game function is passive, not requiring player action during the game. It is assumed crewmen open and close a hatch automatically as needed during a mission. Thus, a hatch does not require a Mechanical order to operate.





Hatch Effects: One or more Hatches allow the fishboat to change elevation during a Mission 25 . During the Rally Phase, if the fishboat is at Surface elevation and crank intensity is Easy, each Hatch allows you to remove one Panic or Terror marker from the crew 33. During Escape 13, a crewman's chance of survival improves if they are close to a Hatch.

No Hatch? If the fishboat does not have a Hatch, it may only traverse the surface of the water. The fishboat may not have a Hatch when propelled by a Boiler Engine 8 (there is no lower deck). Without a Hatch, it may not descend to Awash or a lower elevation. If forced to descend to Awash, it is **Lost** 13 (this can happen as a result of Drift 29).

Hatch Malfunction

- X **1st marker**: Hatch is inoperable (it is jammed shut). While inoperable, treat the Hatch mechanism as if it is not part of the fishboat (if all Hatches are inoperable during Escape 13, no crewmen survive).
- XX **2nd marker**: The fishboat suffers a Leak 12. Each malfunction beyond the second also imposes a Leak. *For example, if a Hatch has four Malfunction markers and suffers yet another malfunction (its fifth), the fishboat suffers another Leak.*

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In history (Hatch)
Historically, nearly all successful (and some not-so-successful) submarines have at least one hatch as part of their design plans. The earliest record of a rudimentary hatch was in a 1620 Dutch submarine designed for King James I of England. Much of the work on hatch design dealt with getting a proper watertight seal between the hatch and its hatch cover; Gutta-percha and India rubber gaskets being early examples.





Keel Weight

The Keel Weight mechanism represents ballast attached to the keel (outside bottom spine), and can be released from inside (releasing the weight is called Cutting Weight, and is a free effect you can trigger anytime during a Mission). The Keel Weight mechanism has no other effect than to perform Cutting Weight. Keel weight is not required to dive via Ballast Tank 6 or Dive Planes 7, but if keel weight is released (Cutting Weight), diving is no longer permitted except by a Dive result on the Drift Table 29.
Cutting Weights Immediate Effect: You may Cut Weight at any time during a Mission turn and its effect is instantaneous. The purpose of Cutting Weight (i.e., releasing the Keel Weight) is to make the fishboat ascend one elevation level (from Awash to Surface, for example). Recycle the Keel Weight mechanism when you do this or, if a scenario, place a Red cube on it as a reminder the weights were cut (this can only happen once per mission). Cutting Weight cancels a Ground result (Drift 29), in addition to ascending one level.
Cutting Weight Lingering Effect: For the rest of the Mission, the fishboat may ascend during the Maneuver step of the Navigation Phase 25 (via Ballast Tank or Dive Planes), but it may NOT descend. Also, in a campaign, Keel Weight may be added to the fishboat again, but a Build action is required (and the cost must be paid).
Tow Check: Keel Weight and Cutting Weight have no effect on Tow Checks 18.

In history
During her second training mission, the *H.L. Hunley* dove beneath the steamboat *CSS Indian Chief* but a mishap caused her to dive bow-first into the sea floor of Charleston Harbor. Divers later found the fishboat's keel weights were still attached to the hull, release of which could have countered the flooded ballast tanks and saved her crew.





Periscope

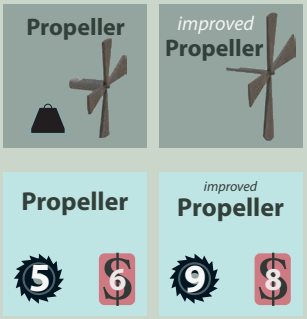
This mechanism may be placed in any space of the fishboat, but to be effective, place it in the same space as the Steering Link or adjacent to it.
Periscope Effect: If at Awash elevation during a Target Check 36, use the Surface row of the Detection Table (on the Discovery Card).
Approach & Target Check Modifiers: Some personae grant a positive modifier during Target Checks 36 or Approach Vector 3, but these may only be applied when that crewman is in the Periscope's space or a space adjacent to it. Thus, to take advantage of the Periscope, place it in the same or adjacent space with the Steering Link.

In history
First developed by Hippolyte Marie-Davy in 1854, the earliest naval periscope was used to provide "topside vision" to the captain and crew of a submerged fishboat. Though mirrors were originally used, the switch to more robust prisms gave greater strength to the device and better definition of the image it was pointed at.

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Propeller

The Propeller may only be placed in the stern space. To be seaworthy, a fishboat must have a propeller. It is vital and vulnerable, but can be protected by a Shroud 13.



Standard & Improved: The Propeller mechanism comes in two versions. The standard Propeller adds one additional weight to the fishboat. The improved Propeller adds NO additional weight to the fishboat. You are not obligated to build a standard propeller before you build the improved version. The fishboat may not have both versions at the same time.

Propeller Malfunction

- ✕ **1st marker**: Degrades Power Grade by 1 and adds a Panic marker to a crewman.
- ✕✕ **2nd marker**: Degrades Power Grade to E and adds an additional Panic marker to a crewman. If already E, there is no additional effect (other than the Panic).
- ✕✕✕ **3rd marker**: The fishboat is Dead in the Water 21. It may not move during the Maneuver step of the Navigation Phase 25.

Propeller Repair

The fishboat must be at Surface elevation. While a crewman has a Repair order (and he is in or adjacent to the Propeller's space), during Step 3 of Navigation Phase, if the fishboat is at Full or Strain Crank Intensity, add a Panic marker to that repairman (this prevents repair from happening during the Repair Phase).

In history

First illustrated use of a screw propeller was on David Bushnell's 18th Century *Turtle*, a one-man submersible used (unsuccessfully) by the American colonials to attack the British Navy. During America's Civil War, a short-lived attempt at underwater oar-driven propulsion for the submarine *Alligator* was made by its designer, the French émigré inventor Brutus de Villeroi. The oar-driven system was later dropped by the Union's Washington Navy Yard, and its propulsion method was changed to the more successful screw propeller design on the now-US Navy fishboat, *USS Alligator*.

Optional: The Propeller's malfunction most likely is fixable only on the outside of the hull, which means the repairmen must leave the fishboat temporarily and swim or clamber to it. As an optional rule, the repairmen must be in or adjacent to a Hatch space, rather than in or adjacent to the Stern.

Quality Build & Reinforcing

These are not mechanisms *per se*, they represent the effort, ingenuity, and means of deliberately making more sturdy the fishboat's hull (reinforcing) or improving the quality of a single mechanism (quality build). Either or both may be added to the fishboat, and they have different effects:

Quality Build: Attach this to a Mechanism already on your fishboat. During a Mission, the first time a Malfunction is applied to that mechanism, the Malfunction is cancelled.

Reinforcing: Place this 'mechanism' on any boat tile, and its effect will apply to the entire fishboat. The first time the fishboat acquires a Leak 12, the Leak is canceled (it has no effect).

Malfunction & Removal? Malfunctions do not apply to Reinforcing or Quality Build, and if either cancels a Leak or Malfunction, the effect is automatically restored at the start of the next mission (the Reinforcing & Quality Build do not have to be repaired). Since Quality Build is attached to a specific mechanism, if that mechanism is recycled, so is the Quality Build 'mechanism.'



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Shroud

A Shroud surrounds and encloses a Propeller 12, protecting it from fouling on seaborne flotsam, seaweed, debris, or, more importantly, on the tow cord of a towed mine. Place the shroud marker on the Propeller.

Shroud Effect: When a Malfunction marker would be applied to the Propeller, apply it to the Shroud instead. Also, see Tow Cord malfunction 18.

Shroud Malfunction

- ✕ **1st marker**: The protective shroud is beginning to get fouled with debris, but this result has no effect.
- ✕✕ **2nd marker**: Shroud is fouled with debris. Add a Fatigue marker to a crewman.
- ✕✕✕ **3rd marker**: Crank Intensity costs one extra Fatigue. Thus, Strain brings three Fatigue markers into play, Full brings two Fatigue markers into play, and Easy brings one Fatigue marker into play.

Shroud Repair

Repair of a Shroud can only be accomplished with the fishboat at either Awash elevation or Surface. During the Navigation Phase, if the Crank Intensity is set at either Full or Strain, the crewman making the Repair panics (add a Panic marker to him; he can't execute the Repair order).

In history

The propeller shroud is definitely one of those "needs must" inventions of uncertain parentage, but we know the *H.L. Hunley's* mechanics installed theirs after experiencing a fouled propeller, experience being an excellent teacher.

Optional: The Shroud's malfunction most likely is fixable only on the outside of the hull, which means the repairmen must leave the fishboat temporarily and swim or clamber to it. As an optional rule, the repairmen must be in or adjacent to a Hatch, rather than in or adjacent to the Stern.





Snorkel

The Snorkel enables your crew to breathe air while the fishboat is underwater at Awash depth (and sometimes lower), and does not need a Mechanical Order assigned for a crewman to operate it. Its effect is passive, but its absence can become tangible during Step 3 of the Navigation Phase 27 when revealing the lower register of the Navigation Card.

Snorkel Malfunction

- ✕ **1st marker**: Add a Panic marker to one crewman.
- ✕✕ **2nd marker**: Add a Panic marker to one crewman.
- ✕✕✕ **3rd marker**: The Snorkel is inoperable. There is no immediate effect, but during Step 3 of the Navigation Phase 27, the fishboat is considered to not have a Snorkel (some results in the lower register of the Navigation Card take effect if there is no Snorkel).

Snorkel Repair

Each Malfunction marker recycled from the Snorkel due to Repair adds a Red cube to the Fate Pool. It was impossible to know definitively if this mechanism was functioning properly while underway, and the addition of a Red cube reflects how sensitive morale was to the threat to the crew's air supply.

In history

The *H.L. Hunley's* snorkel was a four and a half foot long pair of tubes joined at the bottom by a U-joint pipe connected to a hand-operated bellows. In the game, we assume

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a crewman will occassionally work the bellows to introduce air from the surface, but constant attention is not necessary. Although it was known that air was finite in the fishboat, there was no reliable way to measure quantity, and trial and error during training ruled the day. There was no air pressure gauge, nor a means of measuring the chemical composition of the air in the fishboat. The term "snorkel" is admittedly anachronistic, coined in English only after the rise of Germany's mighty U-Boat force of the early twentieth century, but it signals what this crude device would become.

Steering Link





The Steering Linkage is the rudder and everything connected to it, used in steering the fishboat. This provides lateral control for the fishboat. To be seaworthy, a fishboat must have a steering link. Only a crewman with the steering skill may operate this mechanism (he is the de facto captain).

Standard & Improved: The Steering Link mechanism comes in two versions. The standard version is more difficult to repair but requires lower expertise level to Build 47. You are not obligated to build a standard version before you build the improved version. The fishboat may not have both versions at the same time.

Steering Link Malfunction

X **1st marker**: Add a Panic marker to one crewman.

XX **2nd marker**: Add a Panic marker to one crewman. Target Check is not allowed 36 .

XXX **3rd marker**: The fishboat is Dead in the Water 21 25. This has no effect on the Tactical Board (if already there), but on the Mission Board it means the fishboat has a Power Grade of 'E' regardless of crank intensity, and can't move during the Navigation Phase (Step 1 - Steer). Target Check is not allowed 36 .

Steering Link Repair

Each Malfunction marker removed from a standard Steering Link requires recycling one Black cube from the Fate Pool. If there are no Black cubes in the Fate Pool to be recycled, then the standard Steering Link may not be repaired. An improved Steering Link does not require a Black cube to be removed from the Fate Pool to repair it.

In history

A steering linkage's mechanical ancestry goes back to the earliest days of pre-history, using a tiller attached to a rudder that will steer a boat. The word "starboard" comes from the Old English word that translates as "steer board," being the flat, tiller-ed rudder board originally attached to the rear right-quarter side of the boat. The steer board was later moved on the boat's centerline and attached to the sternpost for better handling. Ropes and hawsers gave way to chains and cables, but the mechanism used to steer a boat today differs very little from its ancient ancestor.

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Weapon (Charge & Conveyance)

This section of the Cyclopedia presents the parts of the torpedo carried by the fishboat, charges and conveyances. In this game, Charges come in three sizes, but there are four types of Conveyances.

Conveyance	Elevations allowed 36
Diver	lowest
Spar	Below Shallow or higher
Tow Cord	Below Shallow

Charge

In the 19th Century, the explosives used by both sides could be termed "Low Explosive." This process is deflagration, which is different from detonation (but we use the term Detonation anyway). Deflagration is where a chemical compound (say Nitroglycerin) undergoes a rapid chemical reaction at the molecular level, creating a "High Explosive" blast and shockwave. During the era of the Civil War, only deflagrating Charges were available. All of these Charges used a variety of gunpowder.

Charge Cost: The cost is printed on the Charge marker. There is no Expertise level to satisfy. *"Any fool can blow himself to kingdom come."*

Red Cube: During Mission setup, one or two Red cubes must be added to the Fate Pool, depending on which Charge is attached to the Conveyance (and also for the Tow Cord, if any).

No Charge Malfunction: When a Weapon malfunction occurs 34 , the effect applies to the Conveyance, not to the Charge.

End of Detonation Phase: Detonation recycles both the Charge and Tow Cord or Spar.





Small: Black gunpowder is made from the mixing of Sodium Nitrate, Sulfur and charcoal. These substances are combined together, stirred slowly over and over, and then hand-rolled, forming a uniform granule size called "Corning" (having the granule size and consistency of ground coffee) that will cause the gunpowder to rapidly burn at a steady rate. This quality of gunpowder is common to that used in land artillery. The low price of the Small Charge is due to the plentiful availability of Sodium Nitrate found in bird droppings and bat guano. Though a Small Charge will only occasionally destroy the target, it is likely to damage it. Your crew will in all likelihood survive the Concussion caused by the deflagration of a Small Charge.





Medium: Here, our gunpowder recipe moves up in materials used and lethality; from Sodium Nitrate to Potassium Nitrate. Use of Potassium Nitrate in the recipe means the black powder created here is not just "corned" but "mealed," making smaller table salt-sized crystals that burn more rapidly and greatly increase the deflagration's destructive power. Medium is historically known as "Rifle," and commonly used in small arms. Used as the "general purpose" size torpedo, a Medium Charge will either destroy or heavily damage the target, with a corresponding increase in its Concussion intensity.





Large: The milling process for preparing the Potassium Nitrate-Sulfur-Charcoal mixture for a Large Charge has the gunpowder being further processed; passing through several increasingly fine sieves to get a powder that approaches the consistency of confectioner's sugar, giving it a superfast (but still subsonic) deflagration rate. It is an early form of the "high velocity" grade of gunpowder, and as such was highly favored by the era's sharpshooters. It is deadly and volatile.

In history

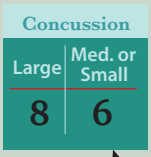
Though gunpowder has its origins in 8th Century Chinese culture, using gunpowder to kill people and break things began in Western Europe during its Middle Ages. Here, its initial use was as a propellant (initially called "Serpent") for the crude artillery of the era, delivering first gun stones, and then iron cannon balls against the enemy's castle walls. The Industrial Revolution of the 19th Century saw gunpowder's explosive charge increasing both in destructiveness and lethality. The amount of materials required for

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production shrank as the skills of processing became increasingly refined, creating a product of great quality and more explosive power. Is this where the phrase "More bang for your buck" hails from?

Diver





Draw 3 cubes for Detonation 6

Concussion number 7

Diver No 8 : *The sea or river floor can be too deep for a Diver. That is, the hull of the target could be too far above them, preventing them from attaching the torpedo.*



These Target icons are marked DN for "Diver No," and it means you may not place the Diver marker on the Tactical Board (i.e., you may not attack that target with a Diver).



Campaign: You may acquire a Diver via a Build action (or Purchase Order), but only if the fishboat has an Airlock 5. The Diver is free, costing you zero funds (even including the Prices Gauge; and no Expertise requirement). We assume he is paid by other sources, such as the War Department. Regardless of Mission outcome, recycle the Diver at the end of the Mission (thus, even if the Diver stayed in the Airlock and was never used, you will have to use another Build action or Purchase order to get him again).

Mission: While the fishboat marker is on the Mission Board, the Diver must reside in the Airlock. The Diver can't be assigned an Order. To enter the Tactical Board with the intent of deploying the Diver against a target, the fishboat's elevation must be at the lowest allowed in that position.

Tactical: The Diver marker transfers to the Far zone during the Move phase (the fishboat can't move that phase and it must be in the Far zone, and stay there). During the next Move phase, the Diver carries the Charge marker to the Near zone, then to the Contact zone in the next Move phase. It then attaches the Charge to the Target and moves back to the Near zone in the next Move phase. Then it moves to the Far zone again in the next Move phase, and finally moves back into the Airlock in the last Move phase. When back in the Airlock, the Charge is detonated (Detonation Phase 6): Draw 3 cubes from the Fate Pool. For the Concussion check 7 , the fishboat is in the Far zone, and the Concussion number is printed on the Diver marker (depending on the size of the Charge). If Enemy Response 10 triggers an explosion (Obstruction/Torpedo target marker only 19), the Diver and Charge are recycled.

No Malfunction: If a Weapon malfunction occurs, and the Diver is in play, nothing happens to the Diver or the Charge. Instead, treat the result as a **Leak** 12 (*the airlock is leaking*).

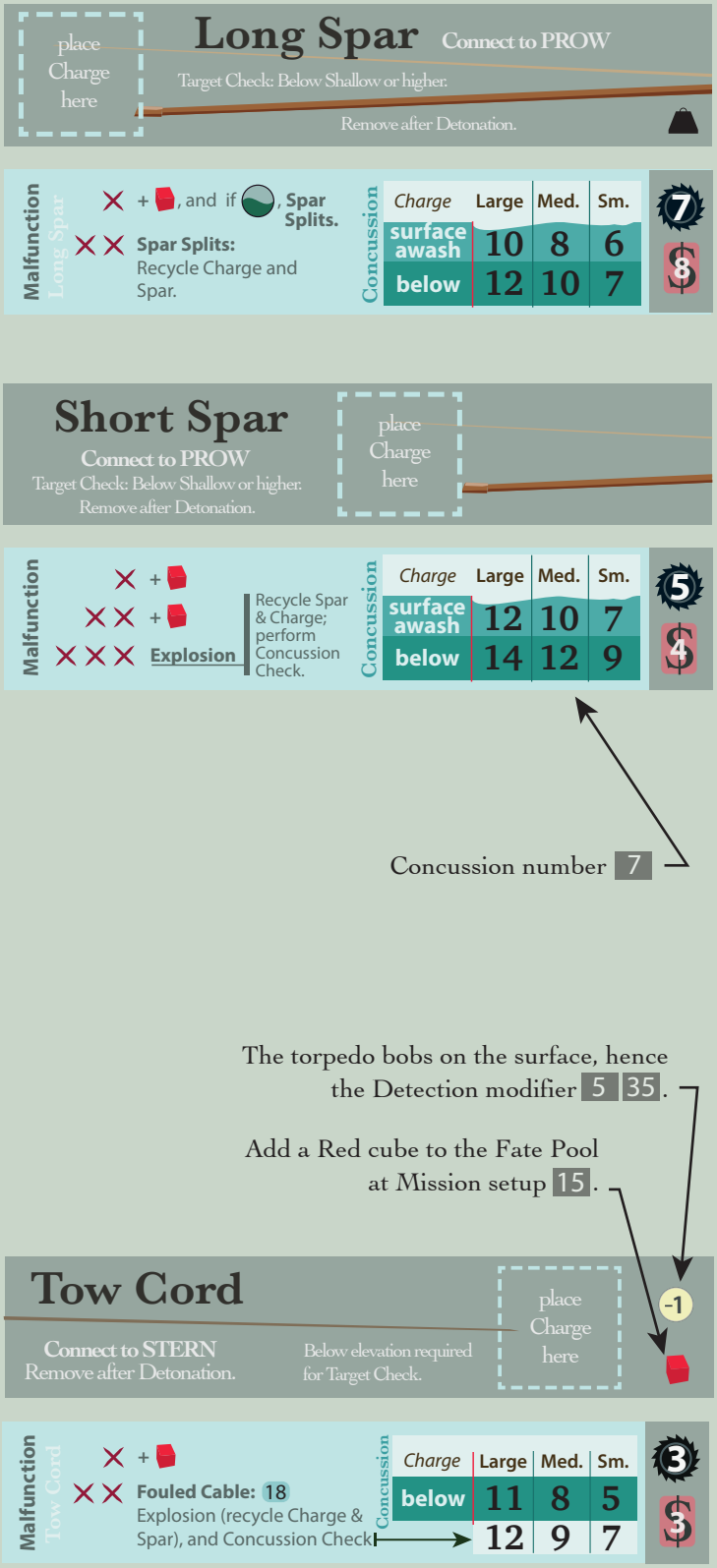
Spar & Tow Cord

A Tow Cord and the Short and Long Spars are delivery systems (conveyances) for explosive charges. They are designed to carry the sometimes cranky torpedo to the hull of an enemy vessel or structure, while at the same time preventing detonation against the fishboat's own hull.

In history

One of the biggest problems encountered in building weapons to destroy the enemy is designing a competent delivery system that is both safe enough to protect the boat and crew, but also reliable enough to make sure the explosive device is delivered on time and on target. The idea of using tow cords to pull a massive captive sea mine behind a fishboat seems like a good idea, until the first time a tow cord gets fouled around the propeller, dragging the captive mine into the stern of the fishboat. The spar delivery system was a workable improvement. The charge was placed at the end of the spar itself, a safe distance from the fishboat and crew. During the Attack Run, the spar with its infernal cargo could be monitored from the fishboat's forward observation ports, and quick action could be taken should the situation warrant it. The problem encountered with spars was that they put the charge not only next to the enemy ship, but also within the explosion's resulting blast and shock wave. This issue was not fixed until 1866 with patenting of the self-propelled Whitehead torpedo.

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Spar

A Spar is a long wooden pole, pipe or metal bar attached to the front of the fishboat to which a torpedo Charge is attached. After the Target Check but before the Attack Run, the spar is lowered to the Attack position in front of the fishboat and the torpedo is armed for battle. Unlike the Tow Cord, the fishboat does not have to dive beneath the targeted enemy vessel. Indeed, depending upon the length of the spar, it may begin its Attack Run from Near distance or Contact distance. Once the torpedo is rammed into the side of the target, the Charge will detonate. Damage to the target vessel will be assessed, and a Concussion Check will be taken, and its results assessed.

Spar Malfunction

Long Spar

- ✕ **1st marker**: Add a Red cube to the Fate Pool, and if the Drift Intensity is Strong, the spar splits (recycle the Spar and its Charge marker).
- ✕✕ **2nd marker**: Recycle the broken Spar and its Charge marker.

Short Spar

- ✕ **1st marker**: Add a Red cube to the Fate Pool.
- ✕✕ **2nd marker**: Add a Red cube to the Fate Pool.
- ✕✕✕ **3rd marker:** Explosion! Conduct a Concussion Check 7 , apply the results, then recycle the Spar and the Charge marker. *In this context, setting crank intensity at the start of the Concussion Check reflects the captain and crew realizing that something is horribly amiss and they scramble to detach the conveyance before disaster ensues. "Away boys, away!"*

Tow Cord

A Tow Cord is a section of strong rope attached to the stern of a fishboat and used to tow an explosive charge torpedo or Captive Mine behind the fishboat. After the Target Check but before the Attack Run, the captive mine is tipped off the stern of the fishboat. The Tow Cord is paid out to its fullest extent. Once in the Contact Zone of the Tactical Board, the fishboat can traverse beneath the target, moving to the Other Side Zone. There, the fishboat detonates the captive mine, the damage to the enemy vessel is assessed and a Concussion Check of the fishboat and crew is made.

Detection modifier: During a Detection Check, subtract one from the number rolled. The towed mine and its wake make the fishboat easier to see.

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Red Cube: During Mission setup, equipping your fishboat with a Tow Cord adds a Red cube to the Fate Pool.

Target Check 36 : A fishboat equipped with a tow cord can only perform a Target Check if Below Shallow elevation.

Tow Cord Malfunction

✕ **1st marker**: Add a Red cube to the Fate Pool.

✕✕ **2nd marker**: Fouled Cable causes Explosion! Conduct a Concussion Check 7 (use the bottom row on the Concussion Table regardless of elevation, cubes may NOT be drawn from the Fate Pool to provide modifiers), then apply the results, and recycle the Cord and the Charge marker. However, if the fishboat has a **Shroud** 13 , apply a *+4* modifier to the Concussion Check die roll (this modifier and the prohibition on Fate Cubes only apply to a Malfunction, not to a Concussion Check performed on the Tactical Board during the Detonation Phase 6).

Targets

This section of the Cyclopedia presents an alphabetical list of target types.

Bridge

The Bridge is a target type assigned during the USA Campaign. It is a target found only on the Richmond Board (City Point location card). Your mission is to destroy one of the two railroad bridges over the Appomattox River: the High Bridge at Petersburg, or the Dunlop Bridge over Swan Creek. They were vital to the transportation of goods and military assets between Richmond and Petersburg. The target's piers are masonry and iron, making it a **strong** target 6 which means you must shift the result in the Detonation Table (on the Tactical Board) one column to the right (if already using the rightmost column, the detonation automatically has no effect).



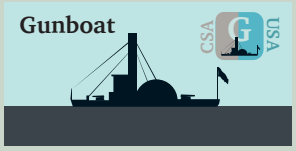
Bridge Attack	Contact	Near O.Side	Far
surface awash	8	4	3
below	4	3	1

In history

Building a bridge in the 19th Century was a mixture of both engineering science and art. Though road bridges were remarkable in their construction and use, it was with the railroad bridge that the art of bridge building reached its apotheosis. A railroad bridge's purpose was to carry the heaviest loads of freight and passengers that a multi-car railroad train was capable of handling. To that end, the pillars supporting the span itself had to be made of a very durable and workable material. In smaller bridges, this could be wood. However, the larger and more massive the bridge's span was, the material of choice was brick or stone masonry, or iron. Because of the materials used, sabotaging a bridge was not an easy task. Next to the span, a bridge's pillars were the target of choice. The bridge's span could be repaired and put back in operation in less than a week. A bridge collapsed due to the successful sabotage of one or more of its supporting pillars could take more than a year to repair or replace, if ever.

Gunboat

A gunboat is a generic term for a vessel that has (usually) been converted to a military ship. Few were purpose-built as military vessels, most were modified with guns and in some cases armor, and manned by sailors and sometimes marines.



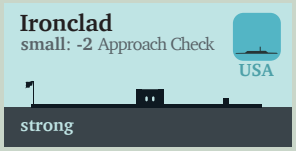
Gunboat Attack	Contact	Near O.Side	Far
surface awash	8	5	4
below	6	4	3

In history

Aside from the Union River Fleet's Ellet Rams, most gunboats used by both sides in the Civil War were converted from civilian passenger and freight steam-powered river

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boats. Though many Union gunboats had an armored sheathing protecting its upper works, others (especially in the Confederacy) were sheathed with wood, so-called "timber-clad" gunboats (USS Tyler for example) or in some cases, "cotton-clad" using stacked cotton bales as an absorptive side armor (like the Confederate River Defense Boat *CSS General Moore*). The Gunboat's diminutive size was balanced by having lighter armament together with limited (or zero) armor protection. Being smaller and lighter than the Sloop or Ironclad, it is easy to deem a Gunboat as being a target of lesser importance. The quantity of gunboats in use by both sides in the Civil War meant that America's rivers and coastlines were a target-rich environment for either side when hunting enemy warships.



USA Ironclad Attack	Contact	Near O.Side	Far
surface awash	6	5	4
below	4	3	3



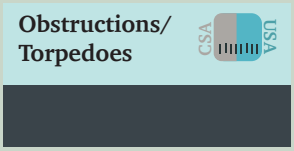
CSA Ironclad Attack	Contact	Near O.Side	Far
surface awash	7	6	4
below	4	3	2

Ironclad

Though Ironclads come in two varieties, the Confederate casemate (*CSS Virginia*) style and the Union's turreted (*USS Monitor*) style, both are equally dangerous to the questing fishboat captain and crew. Both have a low freeboard, with an upper deck that is scant feet above the waterline. The Ironclad's draft (depth of keel to water displaced) makes it a dangerous opponent if your primary weapon is a towed mine; you may not have enough vertical clearance to sail beneath your opponent while towing the mine. This is more of a problem on rivers than coastlines (but has no effect on game play).

In history

Being sheathed in metal and supporting an armored turret or casemate means that the Ironclad can be more top-heavy than a Sloop or Gunboat. However, because of its military and monetary value as a target, plus the notoriety that a successful attack on an Ironclad will cause in the national press, sinking one of these monsters can be a career-maker (or a career-breaker if the mission goes awry) for the fishboat's captain and crew. This is not to say that in a fair fight these monsters are unsinkable and unstoppable. The Union Navy lost the monitor *USS Tecumseh* at the Battle of Mobile Bay to what was thought to be an underwater torpedo mine attack, but could have been due to an unnamed Confederate fishboat that took part in the battle. The *USS New Ironsides* was damaged by a "David" and towed back to the Washington Navy Yard, where it sat out the rest of the war laid up for repairs.



Attack	Contact	Near O.Sd	Far
surface, awash, below	6	4	3

All Miss? Roll 4+ to avoid Explosion. Concussion 15 19

Obstructions/Torpedoes Abbreviated as "Obstruction."

The presence of an Obstruction/Torpedo icon in a position has two effects: It impedes fishboat movement (Enemy Obstruction 25), and presents a target for the fishboat (Target Check 36).

All Miss? This target can be dangerous to the fishboat if it is on the Tactical Board. During Enemy Response 10, if all attack dice miss, it is assumed that the line of obstructions/torpedoes may be hit instead. Hence the note on the marker "Roll 4+ to avoid Explosion." If all attack dice miss, you must roll a die, and if the number rolled is **3 or less**, one or more mines explode. This is both good and bad. It means a hole in the obstruction has been created (and thus, the Obstruction mission objective is achieved), but it also means you must perform a Concussion Check for your fishboat. The Con-

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cussion number is 15 (printed on the target marker). If a spar or tow cord is attached to your fishboat, it and its Charge marker are removed. If a Diver is on the Tactical Board at the time of the Concussion Check, recycle it and the Charge marker (the Diver is killed or never seen again).

In history
Obstructions and torpedoes were initially used in the Richmond theater to block a possible waterborne assault up the James and Appomattox Rivers. After the abortive Appomattox River Raid, Union General George McClellan's use of the Union Navy was as a protective artillery shield for his Army of the Potomac to hide behind, reducing the Navy's mission to reconnaissance probes, raids on shore positions and intelligence gatherings. The Confederate Navy continued to mine and otherwise impede traffic on the James and Appomattox for the rest of the Civil War, with the Union Navy only able to sail upriver past Drewry's Bluff when Richmond fell in April, 1865. Both Charleston Harbor and Mobile Bay were guarded by Confederate obstructions and mines (torpedoes), keeping Union gunboats, sloops, and ironclads at a distance.

The obstruction/torpedo target marker in this game represents a wall lodged in the water as a deterrent against enemy passage. It may consist of anchored barges, piles rammed into the water-bed, or other debris. It may also include mines that can detonate to destroy an enemy vessel pressing through.

Sloop

The Sloop is a generic term for the main warship vessel used by the Union Navy in the Civil War. Steam-powered but equipped with sails, these vessels sat at anchor outside rebel ports (and thus, offered themselves as targets for intrepid and desperate fishboat captains). This target type is possible for the CSA player only, and only on the Charleston and Mobile boards, and also at the City Point position on the Richmond board. It is assumed that the ship is at anchor, occupying a static position or at rest, since a moving target would be nigh impossible for the fishboat to target.

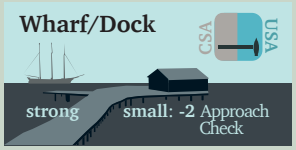


Sloop Attack	Contact	Near O.Side	Far
surface awash	8	6	5
below	5	4	3

In history
Sleek and fast for its size, the sloop was heavily armed with the latest Dahlgren smoothbore cannon and Armstrong rifled cannon, giving them the ability to destroy their prey, or steam away when the prey was too much for the net. Versions of this screw sloop, "screw" referring to its steam-powered propeller, were put to service chasing Confederate blockade runners. The classic battle between sloop and cruiser occurred off Cherbourg, France on June 19, 1864 when the *USS Kearsarge* dueled with and sank the *CSS Alabama*.

Wharf/Dock

Referred to as wharf or dock in this game, this target type represents enemy seaside or riverside infrastructure vulnerable to damage or destruction.



Dock Attack	Contact	Near O.Side	Far
surface awash	8	6	4
below	5	3	2

In history
The destruction of the wharf at City Point on August 9, 1864 was caused by CSA agents concealing an explosive charge in the coal pile of an ordnance barge tied up at the main dock. It is rated "small" because a fishboat or diver would have to target a piling or support under the deck.

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Here we present a list of ships, CSA ships on these two pages and USA ships on the next two pages, that were potential targets for infernal machines during the war. This is not a list of ships that were actually targeted, but a source for identifying the name of a historical counterpart to a generic target generated during game play. We offer these lists to be used (or not used) as you see fit, or merely for historical reference. These lists are optional.

Confederate Ironclads, Gunboats, Commerce Raiders

At the start of the conflict, the Confederacy had no navy to confront her adversaries. Its naval vessels were constructed as needed to counter threats by the United States Navy, with little cooperation between the regional naval departments. Generally speaking, ironclads, gunboats and other craft fought in the port or on the river where they were constructed (fishboats were a notable exception).

The James River Squadron
Headquarters: Initially Norfolk, VA (1861 – 62)
then Richmond, VA (1863 – 65)

Virginia; ironclad, 3200+ tons, casemate, Constructed 1861 on the hull of the USN steam frigate *Merrimac*, armed with cannon salvaged from the abandoned US Navy Yards at Portsmouth, VA and an iron-beaked ram. Famous for her inconclusive battle with the Union ironclad, *USS Monitor* on Hampton Roads, VA. During the Union Peninsular Campaign of 1862, was scuttled near Norfolk, VA to prevent capture.
Drewry; 166 tons, Sidewheel Gunboat, converted 1862, adding ram. Sunk by magazine explosion at Battle of Trent's Reach, 1865.
Fredericksburg; ironclad, casemate, built 1863, blown up to prevent capture, April 1865 off Rocketts Navy Yard, Richmond.
Hampton; 166 tons, Screw Gunboat ('Maury' Class), Built 1862, burned to prevent capture, Richmond, April 1865.
Jamestown; 1300 tons, Sidewheel Gunboat, Converted 1862, Sank after collision with river obstruction off Drewry's Bluff, May 1862.
Nansemond; 166 tons, Screw Gunboat, built 1862, Sunk to avoid capture, Richmond 1865.
Patrick Henry;1300 tons, Sidewheel Gunboat, built 1859, Burned to avoid capture, Richmond 1865.
Raleigh; 65 tons, Screw Gunboat, converted 1862, Burned to avoid capture, Richmond, April 1865.
Richmond; ironclad, casemate, built 1862, scuttled to avoid capture, Richmond, April 1865.
Virginia II; ironclad, casemate, built 1863, blown up to prevent capture, Richmond, April 1865.

Department of the Mississippi
Headquarters initially New Orleans (1861 – 62)
then Port Hudson (1863 – 64)

States created their own naval vessels, either by conversion of commercial boats or merchantmen (such as the *CSS General Quitman*), or as new-build construction (such as the *CSS Louisiana*.) Local towns along the Mississippi and its tributaries formed a River Defense Fleet, in the defense of "their" river. This was particularly true in the Lower Mississippi River and the largest port city in the Western Hemisphere, New Orleans. The fledgling Confederate States Navy joined forces with Louisiana's State Gunboat Flotilla and the vessels of the Lower River's local River Defense Fleet. Three naval commands participating in the defense of Louisiana's Forts Jackson & St. Philip complicated command and control.

Lower Mississippi Naval Operations –
Naval Battle of New Orleans – the passage of Forts Jackson & St. Philip April 24 -26, 1862.

Confederate States Navy
CSS Louisiana; ironclad, 1400 tons, casemate, built 1861. Scuttled to prevent capture during Passage of the Forts, April 1862.
CSS Manassas; ironclad, 387 tons, casemate, converted 1861. Sunk while in action during Passage of the Forts, April 1862.
McRae; 830 tons, Sidewheel Gunboat, purchased and converted 1861. Sunk April 1862.
Jackson; 297 tons, Sidewheel Gunboat, purchased 1861, Scuttled April 1862.

Louisiana State Gunboat Flotilla
General Quitman; 946 tons, Sidewheel Gunboat, acquired & converted 1861. Burned to prevent capture during Passage of the Forts, April, 1862.
Governor Moore; 1215 tons, Sidewheel Gunboat, converted 1861. Sunk to prevent capture during Passage of the Forts, April 1862.

River Defense Boats
Defiance; 544 tons, Sidewheel Gunboat, converted 1861. Burned to prevent capture during Passage of the Forts, April 1862.
General Lovell; 380 tons (est.), Sidewheel Gunboat, converted 1861. Burned to prevent capture during Passage of the Forts, April 1862
Resolute; 520 tons (est.), Sidewheel Gunboat, converted 1861. Sunk to prevent capture during Passage of the Forts, April 1862.
Stonewall Jackson; 385 tons (est.) Sidewheel Gunboat, converted 1861. Sunk below New Orleans, April 1862.

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Upper Mississippi Naval Operations

Operations on the Mississippi River from New Orleans to Memphis saw the Union's fleet of "Pook Turtle" river ironclads opposed by a hodgepodge of ram-converted river steamboats and one very dangerous ironclad, *CSS Arkansas*. Built and launched at Memphis, Tennessee, the *Arkansas* ranged the length of the Mississippi, making a successful run past besieged Vicksburg, by sailing through the entire Union River fleet, and then taking on Union Admiral Farragut's West Gulf Blockading Squadron moored below the town, before heading downriver, where it joined in a re-capture attempt of Baton Rouge. She ran aground and burned there.

Confederate States Navy
Arkansas; ironclad, casement, built 1862. Drifted ashore during abortive attempt to re-capture Baton Rouge, LA: burned to prevent capture, August 1862.
Missouri; ironclad, casement, built 1862-63 on Red River at Shreveport LA. Surrendered June 1865.

River Defense Fleet
General Bragg; 1043 tons, Sidewheel Ram, converted 1862. Ran aground, Battle of Memphis, June 1862. Captured and commissioned as *USS General Bragg*.
General Earl Van Dorn; Sidewheel Ram, converted 1862. Burned to prevent capture, June 1862.
General Sterling Price; 633 tons, Sidewheel Ram, converted 1862. Sunk, Battle of Memphis, June 1862. Salvaged and commissioned as *USS General Price*.
General Sumter; 523 tons, Sidewheel Ram, converted 1862, Captured, Battle of Memphis, June 1862.

Charleston & the Southeast Atlantic Coast

Confederate States Navy
Charleston; ironclad; casemate, built 1863. Burned to prevent capture, February 1865.
Chicora; ironclad; casemate, built 1862. Burned to prevent capture, February 1865.
Palmetto State; ironclad; casemate, built 1862. Burned to prevent capture, February 1865.

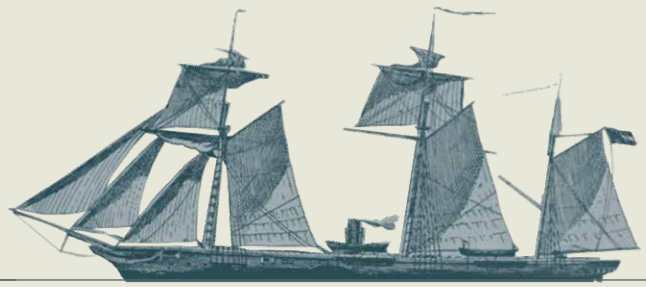
Savannah, GA
Georgia; ironclad (battery), casemate, built 1862 – 63, Sunk when Savannah captured, 1864. Funded by $115,000 from the Ladies' Gunboat Association of Savannah, Georgia, the *Georgia* was built to protect Savannah's harbor and waterways. With an armored casemate constructed from interlocking railroad rails, the *Georgia's* engines lacked enough power to move the ironclad on its own, and it remained a floating battery until the fall of Savannah to Union General Sherman's March to the Sea. In 1987, the wreck of the *Georgia* was placed on the National Register of Historic Places, and is currently (2023) being recovered and cataloged by the US Army Corps of Engineers with assistance from the United States Navy.

Mobile, Alabama and Mobile Bay

Confederate States Navy
CSS Gaines; 863 tons, Sidewheel Gunboat, built 1861 (unseasoned timber delayed launch to 1862). Run aground to prevent capture at Mobile Bay, August 1864.
CSS Morgan; 863 tons, Sidewheel Gunboat, purchased & converted 1861. Surrendered to US Navy in 1865.
CSS Selma; 350 tons (est.) Sidewheel Gunboat, converted 1862. Captured at Mobile Bay, August 1864 and rechristened *USS Selma*.
CSS Tennessee; ironclad, 1270 tons, casemate, built 1863. Surrendered at Mobile Bay, August 1864 and rechristened *USS Tennessee*.

The Commerce Raiders

Alabama; 1050 tons, Screw Sloop, built 1862 at Birkenhead, Scotland. Sunk 1864 off Cherbourg, France by *USS Kearsarge*; One of the most successful of the Confederacy's globe-spanning high seas cruisers, *Alabama* even found time to sink the *USS Hatteras* sidewheel gunboat off Galveston, TX in 1863.
Florida; 1100 tons (est.), built 1861, converted 1862. Seized at a neutral port. October 1864. After being returned to US Navy, was rammed and sunk at Newport News, November 1864.
Shenandoah; 1160 tons, Screw Sloop, built 1864 Laird Works(?), Scotland. After an illustrious globe-circling career, was handed over to British authorities, November, 1865, 8 months after the end of the Civil War.
Sumter; 499 tons, built 1859, converted 1861. Interned and sold at Gibraltar, 1862.



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Union Ironclads, Frigates, Sloops and Gunboats

This list is provided for historical interest only.

Each entry includes a short biographical sketch on vessel's type, class, vessels within class, method of propulsion, on-board armament, war history and vessel disposition at the end of the American Civil War. Unless otherwise noted, hull type is wooden (in game terms, not strong).

United States Navy Vessels (Enrolled 1842 – 1865)

South Atlantic Blockade Squadron (1861 – 1865): Operations area: Cape Hatteras, NC to St. Augustine, FL. Headquarters: Port Royal, SC.

New Ironsides; ironclad; 4120 tons, Screw Frigate [Broadside btty], launched 1862. Burned & Sunk, Dec 1865.
Passaic; ironclad; 1875 tons, Monitor, launched 1862. Sold 1869.
Montauk; ironclad; 1875 tons, Monitor, launched 1862. Sold 1904.
Patapsco; ironclad; 1875 tons, Monitor, launched 1862. Sunk by mine, Charleston, Jan 1865
Nahant; ironclad; 1875 tons, Monitor, launched 1862. Sold 1904.
Keokuk; ironclad; 677 tons, [twin bastion design], launched 1862. Sunk by shellfire, Charleston, April, 1863.
Weehawken; ironclad; 1875 tons, Monitor, launched 1862. Foundered off Charleston, Dec 1863.
Canandaigua; 1395 tons, Screw Sloop, launched 1862. Scrapped 1884.
Housatonic; 1395 tons, Screw Sloop, launched 1861. Sunk by *H.L. Hunley* off Charleston, 17 Feb 1864. First warship to be sunk by submarine in time of war.
Pawnee; 1533 tons, Screw Sloop, built 1859. Sold 1884.
Marblehead; 691 tons, Screw Gunboat, built 1861. Sold 1868.
Seneca; 507 tons, Screw Gunboat, built 1861. Sold 1868
Unadilla; 507 tons, Screw Gunboat, built 1861. Sold November 1869.
Quaker City; 1600 tons, Sidewheel Gunboat, built 1854. Sold in 1865, then sold abroad 1869.
James Adger; 1152 tons, Sidewheel Gunboat [Broadside btty,] 1861 – 1865. Sold 1866.
Powhatan; 3765 tons, Sidewheel Gunboat [Broadside btty], launched 1850. Sold 1868.
Augusta; 1310 tons, Sidewheel Gunboat [Broadside btty], built 1852. Sold 1868.
Huron; 507 tons, Sidewheel Gunboat, launched 1861. Sold 1869.
Memphis; 791 tons, Screw Gunboat, captured blockade runner, converted 1862. Burned 1883.

North Atlantic Blockade Squadron (1861 – 1865) Operations area: Chesapeake Bay, MD to Cape Hatteras, NC. Headquarters: Initially Hampton Roads, VA (1861) then Norfolk, VA (1862 – 1865)

Galena; ironclad; 738 tons, Screw Frigate [broadside btty], launched 1862. Scrapped 1872.
Monitor; ironclad; 987 tons, Monitor, built 1862. Sank in storm off Cape Hatteras, NC in 1862.
Onondaga; ironclad; 1250 tons, Monitor, launched 1864. Sold back to builder in 1867, who then sold her on to France, same year.
Wabash; 4808 tons, Screw Frigate, launched 1855. Squadron Flagship, 1862 - 65. Sold 1912.
Niagara; 5540 tons, Screw Frigate, launched 1855. Sold 1885.
Roanoke; 3435 tons, Screw Frigate, launched 1855. Rebuilt as Monitor ironclad, 1862, Sold 1883.
Minnesota; 3307 tons, Screw Frigate, built 1857. Sold 1901 & Burned soon after.
Susquehanna; 3824 tons, Sidewheel Frigate, built 1850. Sold 1883.
Jamestown; 1150 tons, Screw Sloop, launched 1844. Squadron Flagship 1861 – 62. Burned at Norfolk, VA 1913.
Savannah; 1708 tons, Screw Sloop, launched 1842. Sold 1883.
Albatross; 378 tons, Screw Gunboat, built 1859. Sold 1865.
Anacostia; 217 tons, Screw Gunboat, built 1858. Sold 1865.
Dawn; 399 tons, Screw Gunboat, built 1857. Sold 1865.
Daylight; 682 tons, Screw Gunboat, built 1859. Sold 1865.

West Gulf Blockade Squadron (1861 – 1865) Operations area: St. Andrews, FL to Corpus Christi, TX, includes entire Mississippi River valley. Headquarters: Initially Pensacola, FL (1861) then Ship Island, LA (1862 – 65).

Brooklyn; 2532 tons, Screw Sloop, built 1859. Sold 1891.
Vincennes; 700 tons, Screw Sloop, launched 1827. Sold 1867.
Hartford; 2900 tons, Screw Sloop, launched 1858. Sank at Norfolk Navy Yard sale, 1956.
Varuna; 1300 tons, Screw Sloop, built 1861. Sunk at Passage of the Forts, New Orleans, 1862.
Cayuga; 507 tons, Screw Gunboat, built 1861. Sold 1865.

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Huntsville; 860 tons, Screw Gunboat, purchased & converted 1861. Sold 1865.
Kanawha; 507 tons, Screw Gunboat, launched 1861. Sold 1866.
Kennebec; 507 tons, Screw Gunboat, launched 1861. Sold 1865.
Mississippi; 3220 tons, Sidewheel Gunboat, [broadside btty] launched 1849. Sunk at Port Hudson, LA 1863.
Montgomery; 787 tons, Screw Gunboat, purchased & converted 1861. Sold 1865.
Oneida; 1488 tons, Screw Gunboat, built 1861. Sold & converted, 1867. Collided w/ P&O packet 1870 & sank near Yokohama, Japan, 1870.
Tahoma; 507 tons, Screw Gunboat, launched 1861. Sold 1867.
Water Witch; 378 tons, Sidewheel Gunboat, built 1853. Captured at Ossabaw Sound, GA 1864.
Winona; 507 tons, Screw Gunboat, built 1861. Sold 1865.

Union Mississippi River Squadron (aka Western Gunboat Flotilla)
Operations area: the Mississippi River & its tributaries, north of Baton Rouge, LA.
Headquarters: Initially Cairo, IL (1861) then Memphis, TN (1862) & Baton Rouge, LA (1862-65).

Benton (flagship); ironclad, 688 tons, "Casemate-type" ironclad, built 1861. Sold 1865.
Cairo; ironclad, 512 tons, City-class, built 1861. Struck mine & sank 1862, Haines Bluff, MS.
Carondelet; ironclad, 512 tons, City-class, built 1861. Sold 1865.
Cincinnati; ironclad, 512 tons, City-class, built 1861. Sold 1866.
Eastport; ironclad, 700 tons, Casemate-type ironclad. Converted from captured *CSN Eastport*, 1862. Scuttled 1864 while part of Red River campaign.
Essex; ironclad, 640 tons, Casemate-type ironclad, built 1862. Sold 1865.
Louisville; ironclad, 512 tons, City-class, built 1861. Sold 1865.
Mound City; ironclad, 512 tons, City-class, built 1861. Sold 1865.
Pittsburgh; ironclad, 512 tons, City-class, built 1861. Sold 1865.
St. Louis; ironclad, 512 tons, City-class, built 1861. Renamed *Baron de Kalb* 1862. Sunk by mine in Yazoo River, July, 1863.
Lexington; 448 tons, Sidewheel Gunboat, Built 1861. Sold 1865.
Tyler; 575 tons, Sidewheel Gunboat, Purchased, then transferred 1862. Sold 1865.

United States Ram Fleet (The Ellet Rams)
These were steamboats, tugs and other river craft converted by the Union Army for security and communications duty on the Mississippi River. In 1862, Pennsylvanian Charles Ellet had the idea to convert these boats for protection against the vessels of the Confederate River Defense Fleet. The Confederate Army and Navy hated the Ellet Rams with a passion, and always looked to damage or sink one whenever possible. Not surprisingly, life on board one of these boats was exciting and short.

This is a selection of the most active of the Ellet Rams.
Lancaster; 450 (?) tons, Ellet Gunboat, converted 1862. Sunk at Vicksburg, 1863.
Queen of the West (flag); 406 tons, Ellet Gunboat, captured & converted, 1863. Blown up 1863.
Mingo; 300 tons, Ellet Gunboat, transfer from US Army, 1862. Sank off Cairo IL, 1862.
Switzerland; 500 tons, Ellet Gunboat, transfer from US Army, 1862. Sold 1865.
T.D. Horner; 123 tons, Ellet Gunboat, converted 1862. Sold 1865.

Warships
USS Itasca; (691 tons, Unadilla-class screw gunboat) launched 1861, sold November 1865.
USS Monongahela; (2078-ton, screw sloop), launched 1862, destroyed by fire 1908.
USS Octorara; (981-ton, side-wheel steamer) gunboat "double-ender," launched 1861, sold 1866
USS Ossipee; (1240-ton, steam screw sloop) launched 1862, sold 1891.
USS Port Royal; (805 tons, side-wheel steamer) gunboat "double-ender," launched 1862, sold 1866.
USS Richmond; (2604 tons, screw sloop) launched 1860, sold 1919.
USS Seminole;(804 tons, screw sloop) launched 1859, sold 1870.

Monitors
USS Chickasaw; (805 ton, Milwaukee-class ironclad river monitor, twin-turrets) launched 1864, sold 1874.
USS Manhattan; (1034 tons, Canonicus-class monitor) launched 1863, scrapped 1902.
USS Tecumseh; (2100-ton, Canonicus-class monitor) launched 1863, sunk by torpedo (submarine?) 5 August 1864 Naval Battle of Mobile Bay.
USS Winnebago; (1300-ton, Milwaukee-class ironclad river monitor, twin-turrets) launched 1863, scrapped 1874.

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CSA Personae

This section of the Cyclopedia presents an alphabetical list of Confederate persona cards, organized by type (investor, mechanic, journeyman, sailor).

Investors

Most investors are not useful inside the fishboat during a mission. Their primary role is to fund the project. When an Investor card enters play, you immediately gain its funds (printed on the card). This happens regardless of when the card is drawn. When an investor is removed or recycled, you do not lose the funds that card gave you when the investor entered play (i.e., you don't have to pay it back).

Investor Infusion 45: Many investors give you funds in Winter, during the Income Phase. This is noted on the card. If assigned to a contract or in Sick Bay, you do not gain the persona's Investor Infusion.



This special ability may be used once per game.

Barrow, Robert

1798-1875.

Landholder in Louisiana and Texas, and owner of enslaved people. Commodities speculator. Active in Southern politics. Colleague of Horace L. Hunley, whose sister he married. Major financier for naval construction projects, including the H.L. Hunley submarine. A major land donor, Barrow gave the land and helped build an African-American church in Houma, LA. After the Civil War, Barrow manumitted his slaves, giving them the land and houses they had lived in. While he lost most of his fortune and property during the Civil War, Barrow steadily recouped his losses leaving his family and descendants as well-off as before.

Special Benefit: While in the Shop (not in Sick Bay), Barrow allows you to spend an Action to draw an Investor card (you add that new investor to your shop and immediately gain its starting funds). This benefit is allowed only once per game.



Cheeney shares the tiller with no one.

Cheeney, William

Original name William C. Grummon. In early life worked as printer. Unsuccessful in business, Grummon resorted to crime with mixed results. Released from New York's Auburn Prison after serving five years, Grummon left New York for Missouri. Once there, after changing his name to William Cheeney, he started a newspaper in Jefferson City where his pro-South views soon embroiled him in both Missouri politics and Southern states rights. His act of assisting Missouri secessionist governor Claiborne Jackson in finding arms for Jackson's pro-Southern State Militia branded Cheeney as a secessionist and a wanted man by the Federal government. Cheeney fled for Richmond and while there, studied naval design and engineering. After showing the Confederate Navy his plans for a two-man submarine, Cheeney was put in touch with Confederate Naval architect and engineer James Brooke, as well as with Richmond's Tredegar Iron Works. Cheeney used both of these resources to build his two-man machine. Though innovative, Cheeney's unnamed fishboat was considered "unlucky" by its two-man crew. On its second (and final) mission, the sub's rudimentary snorkel tube was spotted by Union pickets. After lassoing the snorkel, the pickets cut its air hose, and Cheeney's sub sank out of sight. Undaunted, Cheeney set about building more infernal machines (probably three). By 1862, the Confederate government delayed or refused to pay his invoices. By then, Cheeney's unsavory Missouri reputation as a credit-dodger and con-artist caught up with him. He fled Richmond in August,1862. Stuffing plans and important papers into a satchel and saddling a fast horse, Cheeney was last seen heading north.

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Special 'Benefit': When first brought into play, he adds a Red cube to the Fate Pool. Additionally, at the start of a Mission, during setup, if Cheeney is in the fishboat, he adds a Red cube to the Fate Pool (this happens each Mission). Also, if a Steering order is assigned it MUST be assigned to Cheeney if he is a crewman. No other '**must steer**' crewman may be in the fishboat 24 .

Collie, Alexander



London Agent for North Carolina Governor Zebulon Vance, Collie's group of investors formed a loose partnership to either directly or indirectly fund conversion/construction of blockade runner ships to maintain and then increase North Carolina's overseas trade. An inveterate speculator, Collie had control of corporate funds and payments made in both Europe and the Confederacy. Taking commissions as high as fifty percent in some cases, in two years Collie and family moved from a row house in Manchester, England to a mansion in the fashionable Bayswater section of London.
His empire came tumbling down with William T. Sherman's March to the Sea. Sherman captured Savannah and seized over 18,000 bales of Collie's cotton. Collie's attempts to recover his property proved fruitless, which effectively bankrupted his corporation in 1865.

Investor Infusion: Each Winter while Collie is in the Shop, he gives you $1 for each Mechanic in play (even if the Mechanic is in Sick Bay or assigned to a Contract).

Dunn, R.W.



This scrappy patriot is short on money but he knows how to help get things done.

Special Benefit: He gives you an extra Action each Season. This benefit may not be used if he is in Sick Bay.

Gunboat Society



Well-to-do women across what would become the short-lived Confederacy, organized long before the war for the benefit of social reform. When hostilities broke out many used their societal, persuasive and financial skills to fund a navy for coastal and river defense. Collectively they became known as the Ladies Gunboat Societies. Of the twenty two ironclads commissioned by the Confederate States, six (including Savannah's *CSS Georgia*, Richmond's *CSS Virginia II* and *CSS Fredericksburg*, Mobile's *Ladies Ram* and Charleston's *Palmetto State*) were either partially or totally funded by Ladies Gunboat Societies.

Special Benefit: When this persona card is in the Shop (not in Sick Bay), you earn a +1 die roll modifier when you make a Letter of Marque attempt 55. If sent to Sick Bay, it is assumed that perhaps one or more members of this Gunboat Society are stricken ill, while others are putting their efforts into caring for the ill or improving the conditions of hospitals and infirmaries in your area.



You can use this marker to track the number of Missions performed.

Investor Infusion: Each Winter while the Gunboat Society is in the Shop, they give you $1 for each Mission you performed. Outcome of those missions does not matter, they can even be training missions.

Hunley shares the tiller with no one.

Hunley, Horace L.



1823 - 1863
Lawyer, landowner, slaver, and commodities speculator. As the Assistant Collector at New Orleans' US Customs house, Hunley was definitely "something in the city." Upon the outbreak of hostilities, Hunley's talents soon turned to naval engineering, joining with colleagues James McClintock and Baxter Watson in building the *Pioneer*. After Union Admiral Farragut captured New Orleans,

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Must Steer: No other 'must steer' crewman may be in the fishboat with Hunley 24.

Hunley and team escaped to Mobile, but found the nautical conditions were not conducive there. They moved to Charleston, the Queen City. An abortive sea trial saw the loss of five of the eight man crew. Declined permission to sail by Charleston's commanding General, Hunley said he would pilot the sub himself with a hand-picked crew on its next sea trial. The sub's ballast pump malfunctioned, drowning Hunley and the crew. The wreck was salvaged and renamed the *H.L. Hunley*, soon commanded by Dixon 31. Hunley's recovered body is buried in Charleston's Magnolia Cemetery.

Special Benefit: He gives you an extra Action each Spring Season. This benefit may not be used if he is assigned to a Contract or is in Sick Bay. If he joins your Shop in Spring, he immediately adds +1 Action.



Marshall, A.J.

1803 – 1887

State Senator from Fauquier County, VA. Prior to and during the Civil War, Senator Marshall supported many engineering projects in Fauquier and Rappahannock Counties, including a canal linking the Rappahannock River at Fredericksburg to the Chesapeake Bay, which became a strategic target for both sides in the conflict. After the Civil War, Marshall moved to Baltimore, MD, dying there in 1882.

Special Benefit: If Marshall is not in Sick Bay or assigned to a Contract, he gives you an extra die when checking for Mission Type 56 (the Mission Type Table is printed in the CSA Almanac). After rolling both dice, choose one of the numbers rolled and apply the result (if you roll doubles, roll one of them again).



Maury, Martha

1820-1909

Member of Richmond's Greenhow family, patriotic Martha was wife to Robert Henry Maury, whose banking and commodities firm dealt in exchange of gold, silver, bank notes, stocks and bonds. Active in Richmond's version of the Ladies Gunboat Society, she used her connections and charm to support the nautical portion of The Cause.

Investor Infusion: The amount she adds is equal to the Training Level (ignore the Prices Gauge). For example, if at Level 1, she gives you $1.



Singer, Edgar

1825 – 1919

The inventor of the spar-mounted explosive device known as a torpedo, Edgar Singer was a private nautical engineer and machinist. Singer belonged to a family of inventors and industrialists; an uncle invented the Singer sewing machine. The Civil War found Singer and his family living in Port Lavaca, TX which was bombarded by the Union West Gulf Blockade Squadron on October 31, 1862. This act caused the normally peaceful Singer to devote his time, effort and finances to the development of explosive devices. Singer provided both technical and financial support towards the completion of Hunley's submarine, even making sure that it used a Singer spar torpedo as its primary weapon. By war's end Singer was declared a wanted man by the Union. He fled to Mexico, joining other hardcore Southerners there. In 1867, Singer returned to Port Lavaca, where he died at age 93.

Special Benefit: During a Mission, if in a space in the fishboat (i.e., Singer is a crewman), you draw one fewer cube from the Fate Pool during a Detonation Procedure 6 (it is possible and desirable to draw zero cubes). He has no effect on a Concussion Check.

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Smith, Franklin (reverend)



1797 – 1866

Vermont-born, Franklin Smith moved south after he had graduated from Princeton Theological Seminary. Ordained an Episcopal priest, Reverend Smith first settled in Lynchburg, VA before being tapped to head Columbia, TN's new Columbia Female Institute in 1837. In 1852, Smith founded his own female college, the Columbia Athenaeum. With the outbreak of the Civil War, Smith outfitted Company B of the 2nd Tennessee Volunteer Infantry. Forced to leave Columbia, Smith and his family moved first to Memphis and then to Mobile, AL. Smith's knowledge of chemistry and engineering found him involved with the work at Mobile's Park & Lyons Machine Shop, where Horace Hunley and his team were building what would become the *H.L. Hunley*. Smith and his family returned home to Columbia, TN where he died August 4, 1866, aged 69 years.

Special Benefit: While assigned to a Contract, the dollar value of his Contract is doubled (e.g., a $2 Contract earns $4 each Season).

Trenholm, George



1807-1876

South Carolina businessman, politician, plantation and slave owner. Secretary of the Confederate States Treasury. Owner of Fraser Trenholm & Co., a multi-national company. Was responsible for the Confederacy's wartime overseas trade via the blockade runner system. As Treasury Secretary, he approved (and in some cases provided) backing for many "special" Confederate projects, including its secret services. At the fall of Richmond in 1865, saw to the outfitting and loading of the "Last Train Out" with the Treasury's gold bullion and the Confederacy's archives. Post-war, was imprisoned on charges of embezzlement of Confederate treasury funds and war profiteering; released when charges proved unfounded. Elected to State legislature in 1874. Died in office, 1876, aged 69 years.

Special Benefit: When Trenholm enters play, add two Black cubes to the Fate Pool. This happens once when he enters play, not each Mission.

Wilkinson, John (doctor)



1821 – 1891

Virginian John Wilkinson attempted to resign his US Navy commission of twenty years when his state seceded. Denied permission and disciplined for his attempt, Wilkinson was then dishonorably discharged from service, and so began Wilkinson's war with the Union Navy. With his purchase and conversion of the English steamship *Giraffe* into the *Robert E. Lee*, Wilkinson began a very successful and profitable career as a blockade runner. His favorite base of operations was Wilmington, NC where Wilkinson had a stylish Market Street mansion as befits the owner of a successful shipping concern. Open to any plan or enterprise that involved making the US Navy look foolish, Wilkinson emigrated to Canada after the war, only to return to Virginia where he spent his later years writing of his high-seas exploits for the Confederacy. Wilkinson died in 1891, aged 70 years.

Special Benefit: When Wilkinson enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.

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Mechanics

Mechanics come with expertise 47. At least one or two are essential for a viable campaign game. They are the most expensive recruits, and many are quite useful both in the shop and in the fishboat during a mission.



Alexander, William

Lieutenant, 21st Alabama Volunteer regiment. Army Engineer, assigned to Park & Lyons Machine Shop per local CSA support grant. First Officer on both *American Diver* and *H.L. Hunley* submarines. Was recalled to Mobile prior to Dixon's Mission against the US Navy Blockade. Post-war, was main apologist for the *H.L. Hunley*. Listed as an "Electrical Engineer" in Mobile. Died there, May 13, 1914.



Angamar, E.H.

Engineer seconded to the Louisiana State government, studied the Mississippi River's navigation and shipping characteristics.

Special Benefit: When Angamar enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.

Special Benefit: During a Concussion Check 7, add +1 to the number rolled if Angamar is assigned the Steering order.



Crim, Timothy

From Galveston, TX, Crim had a reputation as a skillful nautical engineer and steamboat mechanic.

Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before the Tow Check, if any).



Hall, P.

Mechanic at Richmond's Rocketts Navy Yard, assisted in outfitting of ironclads *Virginia II* and *Fredericksburg*.

Special Benefit: While assigned to a Contract, he gains 1 Expertise 53.



Leavitt, Charles

Mechanic with Richmond's James River fleet, who worked on several ironclad and torpedo launch designs. Whereabouts post-Civil War unknown.

Special Benefit: Has both the Mechanical skill and the Teamwork skill 25.



Lyons, Thomas

Partner in Park & Lyons Machine Shop. Helped build the *American Diver* and *H.L. Hunley* submarines with James McClintock, Baxter Watson and Horace Hunley.

Special Benefit: When Lyons enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



McClintock, James

Partners with Baxter Watson and Horace Hunley, built the submarine Pioneer at Leeds Foundry in New Orleans, then the *American Diver* and *H.L. Hunley* at Park & Lyons in Mobile. After the war, unsuccessful in selling his plans for an improved submarine. Died in 1879 demonstrating a torpedo in Boston Harbor.

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Park, Thomas

Partner in Mobile's Park & Lyons Machine Shop. With Horace Hunley, moved team to Charleston. During their submarine's second sea trial, its ballast pump malfunctioned, flooding the sub and drowning the crew, including Hunley and Park.

Special Benefit: When first brought into play, he adds a Black cube to the Fate Pool (this happens once when drawn, not each Mission).



Smith, Thomas

Special Benefit: When first brought into play, he adds a Black cube to the Fate Pool (this happens once when drawn, not each Mission).



Tomb, James

Assisted naval engineer Daniel Ebaugh in design of *CSS David*, then was *David's* Assistant Engineer during unsuccessful attack on *USS New Ironsides*, Charleston, SC in October 1863. Also took part in abortive attacks on *USS Memphis* and *USS Wabash*.



Special Benefit: At Mission setup, add a Rally marker if Tomb is placed in or adjacent to a space with the Steering Link.

Watson, Baxter

Partner with James McClintock in New Orleans. After its fall to Union forces, they moved to Mobile, using as their base of operations the Park & Lyons Machine Shop. Was instrumental in the construction and testing of the submarine *American Diver*, and what was to become the *H.L. Hunley*. Thought to have remained in Mobile after the fall of the Confederacy. No post-war information found.



Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before the Tow Check, if any).

Journeymen

Journeymen are inexpensive to hire compared to mechanics and some have expertise 47. All can be counted on to crank. Almost nothing is known of these individuals, and in most cases we know their names only because they perished aboard an infernal machine. The images on the cards are all fictitious, either an anonymous period image was used or an image was manufactured (A.I. was not used).

The distinction between mechanic and journeyman can be blurry, a function of developing skills over time, or in some cases a distinction of class and access to education and training. So can that between journeyman and sailor, since many were 'recruited' (conscripted or volunteered forcefully) into the navy.

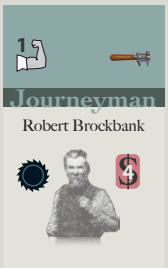
Baird, Henry

Employed at Park & Lyons Machine Shop in Mobile. Transferred to Charleston with Horace Hunley to raise, refit and crew that infernal machine. Was crewman on 2nd sea trial, and perished with Hunley, October 15, 1863. Buried in Hunley Plot of Charleston's Magnolia Cemetery.

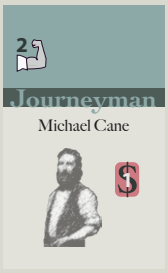


Brockbank, Robert

Employed at Park & Lyons Machine Shop in Mobile. Present on 2nd sea trial, and drowned with Hunley and the rest of his crew mates on October 15, 1863. Buried in Hunley Plot of Charleston's Magnolia Cemetery.

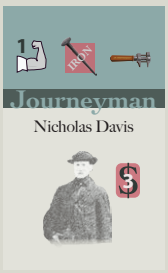


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Cane, Michael

Was crewman on first sea trial of submarine, died when boat foundered in wake of passing ship and sank on August 29, 1863. Buried in Hunley Plot, Charleston's Magnolia Cemetery.



Davis, Nicholas

Was crewman on first sea trial of submarine at Charleston. Died with four other crewmen when boat foundered in wake of passing ship, August 29, 1863. Buried in Hunley Plot, Charleston's Magnolia Cemetery.



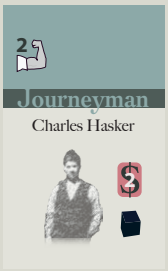
Doe, John

No information. Once thought to be Frank Collins on the *H.L. Hunley*, but DNA tests in 2023 tell a different story.



Doyle, Frank

Employed at Park & Lyons Machine Shop in Mobile. Was crewman on first sea trial of submarine at Charleston. Died with four other crewmen when boat foundered in wake of passing ship, August 29, 1863. Buried in Hunley Plot, Charleston's Magnolia Cemetery.



Hasker, Charles

Crewman on first sea trial of submarine at Charleston. When boat foundered in wake of passing ship, Hasker escaped, surviving the events of August 29, 1863.

Special Benefit: When Hasker enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Kelly, John

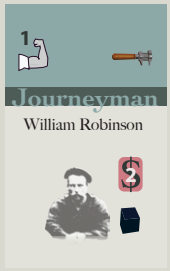
Crewman on first sea trial of submarine at Charleston. Died with four others when boat foundered in wake of passing ship, August 29, 1863. Buried in Magnolia Cemetery.



Marshall, John

Was crewman on 2nd sea trial, and perished with Hunley and crew mates on October 15, 1863. Buried in Hunley Plot of Charleston's Magnolia Cemetery.

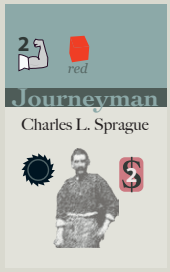
Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before the Tow Check, if any).



Robinson, William

Was crewman on first sea trial of submarine at Charleston. When boat foundered in wake of passing ship, Robinson escaped the sinking submarine, surviving the events of August 29, 1863.

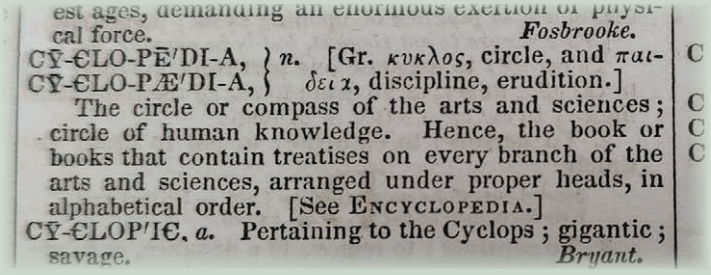
Special Benefit: When Robinson enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Sprague, Charles L.

Was crewman on 2nd sea trial, and perished with Hunley and crew mates on October 15, 1863. Buried in Magnolia Cemetery.

Special 'Benefit': During Mission setup, he adds a Red cube to the Fate Pool (this happens at the start of each Mission).



est ages, demanding an enormous exertion of physical force. *Fosbrooke.*

CŸ-CLO-PĒ'DI-A, } *n.* [Gr. κυκλος, circle, and παιδει α, discipline, erudition.]
CŸ-CLO-PÆ'DI-A, }

The circle or compass of the arts and sciences; circle of human knowledge. Hence, the book or books that contain treatises on every branch of the arts and sciences, arranged under proper heads, in alphabetical order. [See ENCYCLOPEDIA.]

CŸ-CLOP'IC, *a.* Pertaining to the Cyclops; gigantic; savage. *Bryant.*

- Noah Webster, *An American Dictionary of the English Language*, revised and enlarged by Chauncey Goodrich, George and Charles Merriam, Springfield, Mass (corner of Main and State Streets) 1852.

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Sailors

Sailors may only be recruited when you have a **Letter of Recruitment** 55 . The Confederate navy shrank during the war, as the blockade gradually restricted its access to the sea and to navigable rivers. Many sailors found themselves on shore duty, or lent to the army. The majority of sailors here are depicted from forensic work performed at the Lasch Center in Charleston, South Carolina.

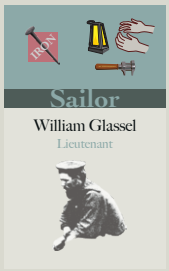
Connor, Walker

No information available.



Glassel, William

1831 (California) - 1876
Lieutenant US Navy. At outbreak of Civil War, assigned to *USS Hartford* in China. Declined to take oath of allegiance to United States, was imprisoned and dropped from service. First captain of the torpedo boat *CSS David*, and hired James Tombs as its Engineer. Commanded David in attacks on *USS Powhatan*, then *New Ironsides* and finally *Wabash*. Oversaw construction of at least three additional "David" class torpedo boats in Charleston.



Jones, Catesby

1821 (Virginia) – 1877
Converted *USS Merrimac* into ironclad *CSS Virginia* at Norfolk, 1861. Served as her Executive officer. Rose to command upon wounding of Captain Franklin Buchanan at battle of Hampton Roads against *USS Monitor*. Commanded shore battery at Drewry's Bluff (1862) citied for gallantry under fire. Promoted Commander (1863). Sent to command Navy Works at Selma. Supplied ordnance and other naval materiel to Confederacy. Post-war, was in private business in South America, then returned to Selma. Was shot dead in quarrel between his 7-year-old son and another 10-year-old, June 21, 1877.

Special Benefit: When Jones enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Special Benefit: During Mission, if assigned Steering order, gains +2 die roll modifier during the Approach Vector (Tactical Bd. setup 3).

Payne, John

Commanded the Hunley on its first sea trial at Charleston,He leaped from the open forward hatch when the boat foundered in wake of passing ship and escaped the along with two other crewmen. The remaining five crewmen drowned, August 29, 1863.
Special 'Benefit': During Mission setup, he adds a Red cube to the Fate Pool (this happens at the start of each Mission).



Rice, James

No information available.



Sullivan, James

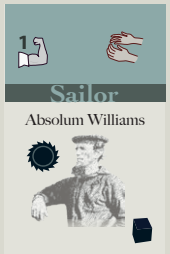
Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before the Tow Check, if any).



Williams, Absolum

Absolum enlisted to serve on the *Palmetto State*. Crewman on first sea trial of submarine at Charleston. Died with four other crewmen when boat foundered in wake of passing ship August 29, 1863. Buried in Magnolia Cemetery.

Special Benefit: When Williams enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Wilson, A. J.

No information available.



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H.L. Hunley Crew

The remains of the *H.L. Hunley's* final crew were recovered when the wreck was raised from the seabed on August 8, 2000. All now are buried in Hunley Plot, Charleston's Magnolia Cemetery. The images used here are based on forensic busts created by the Lasch Center in Charleston, where the Hunley's wreck now lies.



Becker, Arnold

Originally served on "timberclad gunboat" *CSS General Polk* in 1861. Joined crew of *CSS Chicora*, then *CSS Indian Chief* at Charleston October, 1861. Joined "3rd Crew" of *H.L. Hunley*.

Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before the Tow Check, if any).



Carlsen, Johan

Danish seaman, served on Confederate privateer *Jeff Davis*. Interned with ship's crew due to "legal matters" (mutiny?) at Charleston, late 1861. Enlisted in local German artillery Company.



Collins, Frank

Recruited by George Dixon, 1863. Confusingly, he is also buried in northern Virginia, having died many years after the war. It is possible that the Collins buried in Magnolia Cemetery was actually an as-yet unidentified sailor.



Dixon, George (CSA Army)

1837 (Kentucky) – 1864
Joined Alabama's 21st Infantry Volunteers. Wounded at Hornet's Nest, Battle of Shiloh, April 6, 1862, ("lucky" $20 Gold Piece from sweetheart saved leg). While recuperating in Mobile, joined Park & Lyons Machine Shop assisted in construction of *American Diver* and *H.L. Hunley*. After loss of Hunley and 2nd Crew in October 1863, Dixon persuaded Charleston defenses General Pierre Beauregard to allow training to continue. Recruited and trained 3rd Crew, piloted *H.L. Hunley* at sinking of *USS Housatonic*, then lost with crew, February 17, 1864.

Special Benefit: During a Target Check 36, add +2 to the number rolled if Dixon is assigned the Steering order.



Lumpkin, Cincinnatus

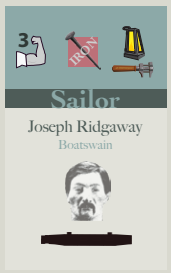
Position of Lumpkin's remains in the Hunley's wreck indicate he held position of "2nd Crank," setting crew pace at rotating *H.L. Hunley's* crank shaft. Recent research suggests he may have occupied Collins's position instead.

Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before Tow Check, if any).



Miller, Augustus (Augustin?)

Remains found at 5th Crank position. Records differ as to the spelling of his name.



Ridgaway, Joseph

Most experienced sailor on the *H.L. Hunley*. Promoted to second-in-command by Dixon when William Alexander was recalled to Mobile. Responsible for manning the *H.L. Hunley's* 7th Crank position, operating aft hatch and aft level pump.



Wicks, James

1819 (North Carolina) – 1864
US Navy, joined CSN after his ship *USS Congress* burned at Hampton Roads by ironclad *CSS Virginia*. Rose to positions of responsibility, including Quartermaster. Manned *H.L. Hunley's* 6th Crank position.

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USA Personae

This section of the Cyclopedia presents an alphabetical list of United States persona cards, organized by type (investor, mechanic, journeyman, sailor).

Investors

Most investors are not useful inside the fishboat during a mission. Their usual role is to fund the project. When an Investor card enters play, you immediately gain its funds (printed on the card). This happens regardless of when the card is drawn. When an investor is removed or recycled, you do not lose its funds.

Investor Infusion 45 : Many investors give you funds in Winter, during the Income Phase. This is noted on the card. If assigned to a contract or in Sick Bay, you do not gain the persona's Investor Infusion.

Bushnell, Cornelius



Partnered with Augusta Price and Scovel Merriam to form the American Submarine Company. Bushnell frequently disputed with his partners about cost overruns and construction delays. The Company's submarine lingered in dry dock until a year after the war ended.

Special 'Benefit': When Bushnell enters play, add two Red cubes to the Fate Pool. This happens only once when he enters play, not each Mission.

Biederman, E.



An American living in London in 1861, Biedermann posted a letter to Secretary of the Navy Gideon Welles about plans for a submarine to be built by a Mr. Bauer, who intended to sink enemy vessels by either boring holes in them or attaching explosives to their hulls. Britain's Admiralty declined the offer. Imperial Russia, still smarting from their defeat in the Crimean War, agreed. Bauer's boat was built in St. Petersburg, and successfully tested in the Neva River over one hundred times, remaining underwater for six to eight hours each time. Biedermann's letter arrived on Welles' desk at the same time that the Navy was finalizing their deal for construction of Brutus de Villeroi's *Alligator*.

Cheeney, William



Cheeney arrived in Washington in August 1862 to claim grievance against the Confederacy. The War Department was not interested and Cheeney's several attempts to see President Lincoln failed. He left for his home town of Le Roy, New York, and then back to Jefferson City, Missouri. There, his Southern sympathies were frequently on vocal display. Arrested in February 1864 by Missouri's Federal military government, Cheeney ended up in Saint Louis' Gratiot Prison. He escaped later that year, but was not pursued, settling in Jefferson City. In 1875, he moved to Texas where he spent the remainder of his life in a somewhat dubious career selling "mining rights" to investors from back east. He died in 1891, aged 62 years.

Special 'Benefit': When Cheeney enters play, add a Red cube to the Fate Pool. This happens only once when he enters play, not each Mission. Additionally, during Mission setup, if he is placed in the fishboat, add a Red cube to the Fate Pool (this happens at the start of each Mission).

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Goodrich, Mary

Vice-Regent of the Connecticut chapter of the Mt. Vernon's Ladies Association and an active promoter of Sanitary Fairs during the war. There is no evidence of her fundraising for infernal machines, but we use her to represent elite women in position to perform such a role. She stands in for the northern counterpart to the south's gunboat societies.

Investor Infusion 45 : Each Winter season, Goodrich gives you $2 for each Mechanic in the Shop, in Sick Bay, and assigned to Contracts.



Halsted, Oliver (Pet)

1819 Newark - 1871

A failed politician and Washington "hanger-on," Oliver "Pet" Spencer Halsted used his friendship with President Lincoln's wife to make a place for himself in Washington's political and business scene. This garnered steamship, cannon and ammunition contracts from Assistant Secretary of the Navy Gustavus Fox. Halsted was also involved in numerous affairs of the heart, the final one resulting in his murder at the hands of a jealous fiancé on July 2, 1871 in Newark, NJ.

Special Benefit: During a Commission Check 51 , add +2 to the sum of numbers rolled.



Hatch, Francis

Appointed Supervisor of the US Customs House in New Orleans in 1858, Hatch oversaw inspections of vessels arriving from the Gulf of Mexico and down the Mississippi River. Despite the confusion resulting from secession, he kept the House running and all employees at their job.

Special Benefit: During a Recruit action 60 (and not during the Fortunes of War phase), as long as he is not assigned to a Contract and not in Sick Bay, each persona recruited costs $1 less.



Horsford, Eben

In 1863 Professor Horsford of Cambridge submitted plans for a fishboat accommodating a crew of 30, an airlock emptied by compressed air, and an air purifier using lime water to scrub carbon dioxide out of the air. If this sounds like a duplicate of de Villeroi's *Alligator* to you (except for Horsford's inclusion of a periscope in his design), the Navy thought so as well.

Special Benefit: When assigned to a Contract, its dollar value is doubled. E.g., a $2 Contract gives you $4 each Season.



Must Steer: No other 'must steer' crewman may be in the fishboat with Price 24 .

Price, Augusta

In 1863, after partnering with Cornelius Bushnell in the American Submarine Company, Price and Scovel Merriam provided funds in the amount of $15,000 to start construction of Merriam's infernal machine. Afflicted with construction delays and cost overruns, the American Submarine Company's secret machine was still under construction at war's end.

Special Limitation: If Price is a crewman, he is the only crewman who may be assigned the Steering order.



Sigourney, Lydia

1791 Norwich - 1865

Poet, author, publisher, and journalist, Sigourney's influential writings during the war helped steer public opinion and those in Washington. Although she herself was not an

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investor, she could sway others to support a worthy cause.

Special Benefit: When Sigourney enters play, add a Black cube to the Fate Pool. This happens only once when she enters play, not each Mission.

Sturgis, Russell

1805 Boston-1887 London
Active in trade and business in and with the Far East. During the American Civil War, Sturgis lived in London, England as a partner in the prestigious Barings Bank, giving him worldwide contacts both in business, shipping and finance.



Special Benefit: While in the Shop (not in Sick Bay), Sturgis allows you to spend an Action to draw an Investor card (you add that new investor to your shop and immediately gain its starting funds). This benefit is allowed only once per game.

de Villeroi, Brutus

1794-1874
Born in Tours, France as Brutus Villeroi, later knighted (French Legion d'Honneur, 1839) changing name to "de Villeroi." Taught Music, Mathematics & Engineering at the College de St. Donatien in Nantes, France. First submarine built and demonstrated in 1832. In 1856 de Villeroi emigrated to United States, listing his occupation as "Natural Genius" on the 1860 census. He constructed his first submarine for the underwater salvage industry in 1859, and in 1861, the US government contracted him to build a machine initially named the *Submarine Propeller* (but soon changed to *Alligator*). De Villeroi initially supervised construction of it in Philadelphia. His wife, Eulalie (q.v.), being fluent in English, (something her husband was not) qualified as both an Assistant Engineer and his secretary on the project. Due to disagreements about certain design changes ordered by the Union Navy, de Villeroi was removed from the project in April, 1862. Politically active, both de Villeroi and Eulalie continued their support for the Abolitionist Movement. Dying at 81, his obituary in the *Philadelphia Inquirer* commented that he "was an accomplished gentleman, and had the courtly manners of one who had mixed in the highest circles."



Must Steer: No other 'must steer' crewman may be in the fishboat with Villeroi 24.

Special Benefit: While in the Shop (not in Sick Bay or assigned to a Contract), he adds 2 to your Shop's Expertise ✹ (applies to the Expertise printed on the Location Card). If Merriam is in the Shop, Merriam doubles Shop expertise before adding Brutus' benefit.

Special Limitation: If Villeroi is a crewman, he is the only crewman who may be assigned the Steering order.

Design & Historical Note About Card Images

Persona images were derived from photographs captured in the nineteenth century, most during the war, or paintings of greatly varying quality. Hence the disparate rendering styles. When images could not be obtained, substitutes were used. Jules Verne's portrait can be found here, H.G. Wells too, and designers also resorted to including images of their friends and ancestors. The vast majority of images used for both USA and CSA persona cards, however, were taken from the Library of Congress's archive of anonymous veterans. Almost none depict the historical person named on the card, since the majority of those individuals did not leave behind an easily accessible photographic record. Absolum Williams, for example, was the descendent of an enslaved great-grandfather who joined the CSA navy to serve on an ironclad before drowning or suffocating inside an infernal machine in Charleston Harbor. We don't have a photograph of him or a portrait painting. The image on his card was inspired by a photograph of an anonymous sailor we found in the Library of Congress.

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Mechanics

Most Mechanics come with expertise 47, and at least one or two are essential for a viable campaign game. They are the most expensive recruits, and many are quite useful both in the shop and in the fishboat during a mission.



Eakins, Samuel

1810-1894

His family business was in the Philadelphia and Pittsburgh electroplating and jewelry trade. Eakins served in the US Army for several years before resigning in 1854, rejoining his family business in Philadelphia. After the US Navy's disagreement with Brutus de Villeroi in April, 1862, Eakins was appointed Supervisor of the *Submarine Propeller's* refit at Washington's Navy Yard. His knowledge of underwater salvage, electricity and demolition caused the US Navy to award Eakins, a civilian, the temporary Navy rank of Acting Master. In March 1863, as work on the *Submarine Propeller* headed toward completion, Eakins was notified by Union Secretary of the Navy Gideon Welles that the boat had been accepted onto the Rolls of the US Navy as the *USS Alligator*. While enroute to Charleston, SC the Alligator was sunk in a heavy gale off Cape Hatteras, North Carolina. Braving the storm's fury, Eakins and his crew made a hazardous transfer from *Alligator* to the tow-ship *USS Sumpter*. While being transferred, Eakins received injuries that would plague him for the rest of his life. Eakins and crew arrived at DuPont's headquarters in Port Royal, SC to find that his temporary rank of Acting Master had been revoked, and that the *Alligator's* crew would be "used where needed" in DuPont's Squadron. An angered Eakins, fuming over the Navy's shabby treatment of his crew and their unjust revoking of his commission, resigned forthwith.

Special Benefit: If in play at the start of the Action phase, Eakins gives you an extra Action each Spring Season. This benefit may not be used if he is assigned to a Contract or is in Sick Bay.



Hunt, William

A civilian Mechanic of some reputation in Philadelphia, William Hunt was tapped by de Villeroi to oversee the 1861-62 shakedown baptism and trials of the Submarine Propeller in the Delaware River. A February 1862 communique from the US Navy's Bureau of Docks and Yards sent to the Philadelphia Navy Yard ordered Hunt to "prepare, man and report the boat for service." By all accounts, Hunt complied with this order. In March of 1862, the Submarine Propeller and her crew were on their way to Hampton Roads.

Special Benefit: While Hunt is assigned to a Contract, he gains an extra Expertise (i.e., he has 2 Expertise instead of 1).



Kroehl, Julius

1820-1867. East Prussian by birth, he became a naturalized US citizen in 1849. Naturalized US citizen in 1849. Kroehl's business interests were varied and wide. Secured patents for a form of color photography, among other inventions. During the war, Kroehl's company H&K, was seconded to the Union's river navy as a defense contractor (in today's parlance). H&K developed plans for a US Navy fishboat. In 1865, Kroehl became Chief Engineer of the Pacific Pearl Company. Following his plans, his fishboat was completed in 1866, and operated off Panama's Pearl Islands.

Special Benefit: During a Target Check 36, add +1 to the number rolled if he is assigned the Steering order.

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Moser, John



Special Benefit: When Moser enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.

McMillan, John



In July 1862, the *Alligator* was to be towed to the Washington Navy Yard for a complete refit. With the crew's nominal leaders Eakins and Thomas gone and crew morale in shreds, it fell to Mechanic and Master's Mate John McMillan to take charge. Though respected for his mechanical talents by the crew this proved to be a task beyond his abilities. In August 1862, US Navy Lieutenant Thomas O. Selfridge, the newspapers' "Hero of the *USS Cumberland*," took command of the *Alligator* for the trip north.

Recruitment Augmentation: If your Location is Boston, add +1 to the Recruitment Limit 60.

Merriam, Scovel



In the fall of 1863, Scovel Merriam created a design for a submarine. Together with investors Augusta Price and Cornelius Bushnell, they formed the American Submarine Company in New Jersey and began work constructing the boat from Merriam's plans. Cost overruns and construction delays kept Merriam's dream from being realized until April of 1866.

Special Benefit: While not in Sick Bay or assigned to a Contract, Merriam doubles your Shop's Expertise (i.e., the Expertise printed on the Location Card is multiplied by 2). If Brutus de Villeroi is in the Shop, Merriam doubles Shop expertise before adding Brutus' benefit.

Morell, J.B.



March 1862's attack of the ironclad *CSS Virginia* on the US fleet at Hampton Roads sent shockwaves of fear across the North. As usual, many inventors and tinkerers saw this fear as their means to a fortune. One such was Mechanic J.B. Morrell of New York City who, upon being rebuffed by US Navy Secretary Gideon Welles, said his completed "submarine battery" was, according to Morrell, currently "docked somewhere in New York Harbor." Morrell needed the Navy to transport it to Hampton Roads, and also lend him a barge, support and supplies. Once on site, Morrell and his submarine battery would "sink the *CSS Virginia* for three hundred thousand dollars." If Morrell failed in the attempt, there would be no charge for his services. Nothing was heard from Morrell or his submarine battery after this.

Special Benefit: Has the Teamwork skill 25.

Phillips, Lodner



A shoemaker turned engineer, Phillips and his mysterious partner Peck demonstrated submarines of their design on Lake Michigan in the 1850s. Sporting rocket-propelled torpedoes and underwater artillery (allegedly), Phillips made fruitless attempts to persuade the wartime Navy to purchase these designs.

Special Benefit (Training): While not in Sick Bay or assigned to a Contract, Phillips allows you to replace a Journeyman with a Mechanic. Remove the Journeyman card and draw a Mechanic for free. This does not cost an Action but it may happen only once per game.

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Thomas, Martin

Though a competent Mechanic, Thomas was prone to bouts of playing "office politics," often siding with Samuel Eakins. This severely hampered the training and then the crew's performance in handling an "unbloodied" *Submarine Propeller*. In June 1862, as the re-named *Alligator* was being readied for her tow to the Washington Navy Yard, both Thomas and Eakins (and several of the crew) were conspicuously absent for the event. Afterwards, Thomas alone turned up, demanding of the Navy's Flag Officer Goldsborough $400 for "crew victuals and supplies" and $45 a day for his participation in the tow of *Alligator*.

Special Benefit: During Mission setup, when performing a Tow Check 18, add +2 to the die roll if Martin is in or adjacent to a space with the Steering Link (he needn't be assigned the Steering order). Unfortunately, he adds a Red cube to the Fate Pool when brought into play.



Villeroi, Eulalie

In 1859, listed as "Assistant Engineer" on the *Submarine Propeller* at Philadelphia's Neafie & Levy Shipbuilders. With husband Brutus, whom she translated for, departed project in late 1861 over disagreement with the US Navy. Upon death of Brutus in 1874, Eulalie remained in Philadelphia with family members. Died in 1896.

Special Benefit: During a Mission, when she and her husband are crew, you earn the Teamwork skill 25 (it may be assigned to any repairman each Mission turn).

Journeymen

Journeymen are inexpensive to hire compared to mechanics and many have expertise 24 47. All can be counted on to crank. Almost nothing is known of these individuals, and in most cases we know their names only because they perished aboard an infernal machine. The images on the cards are all fictitious, either an anonymous period image was used or an image was manufactured (A.I. was not used).



Dittman, Charles

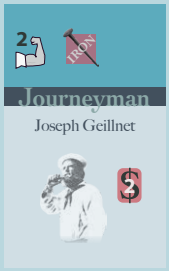
Hired by de Villeroi, January 1861 through April 1862. Pensioned off in June, 1863. Joined Battery E, 1st NJ Light Artillery, served from September 1863 to January 1864. Deserted January 1864. Died sometime before 1900.

Special Benefit: Has the Teamwork skill 25.



Doe, John

No information.



Geillnet, Joseph

Geillnet saw service in the Submarine Propeller and the *USS Alligator* beginning in December 1861 through April 1863, seeing action in June 1862's abortive Appomattox River Raid.



Germain, George

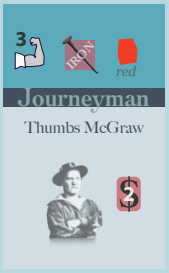
Crew service on *Submarine Propeller* then *Alligator* beginning in December 1861. After *Alligator*, Germain served as 3rd Assistant Engineer on *USS Vanderbilt*.

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Kreiner, Henri
1843 - 1910 (or later)
Worked as wharf builder in Philadelphia. Joined *Alligator* crew in 1861. Pensioned off 1864.



McGraw, Thumbs
Special 'Benefit': During Mission setup, he adds a Red cube to the Fate Pool (this happens at the start of each Mission).



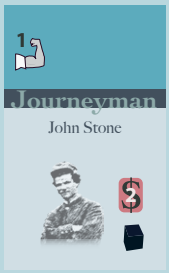
Rhodes, Alexander
1842 Bordeaux, France - 1920.
Served as Fireman/Stoker on board *USS Wissahickon* May 1861. Joined *Submarine Propeller* crew in November 1861 and as part of *Alligator* crew through June 1863. Transferred to several ships between 1863 – 1864. Pensioned off in 1864. In later life, became active in local politics.



Sioux, Francois
Hired by de Villeroi, served on *Alligator*, December 1861 to April 1863. Then enlisted in Union Army, joining Curtin Light Guards (109th Pennsylvania Volunteers) in May 1863. Francois or Francais, or other variations on his name, deepen the mystery of this man.



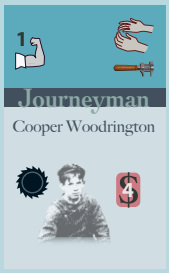
Stone, John
Special Benefit: When Stone enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Taylor, Lucky
Special Benefit: When Taylor enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Woodrington, Cooper
1839 Beverly, N.J. - 1923.
In 1857, hired as a "Diver" by Brutus de Villeroi. In 1862 he served on the *Alligator*, and after she capsized in 1863 he was reassigned to other duties.



Sailors
Sailors may only be recruited when you are commissioned 51 . Very little is known about the men who served on Union fishboats, and except for those whose names appeared on the rolls of the *Alligator*, these names are fictitious. Likewise images, many taken from plates in the Library of Congress.

Austin, Amos
Hired by Samuel Eakins as "Landsman" and then crew member for the de Villeroi *Alligator* team, late 1861. Promoted to Seaman, serving from November 1861 through to April 1863. Died July 1883, aged 43 years.



Bates, Joseph
Bates was a civilian Sailor detailed as part of the *Alligator* crew during April to July 1862 under Samuel Eakins. July 1862, Bates enlisted in Co. D 24th New Jersey Infantry, rising to rank of Sergeant.

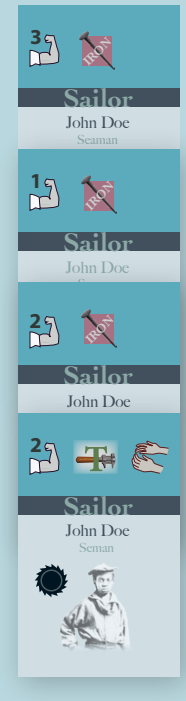


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Claypool, Ben

Joined Bates PA Volunteers in 1861. Served as sailor in *Alligator* under Samuel Eakins. Listed as member of *Alligator* crew at Port Royal in June, 1863 in aftermath of *Alligator* sinking off Cape Hatteras. Last known living in Philadelphia at time of 1880 Census.



Doe, John

Most crewmen of the Silent Service (as it would come to be known in a later war), went unrecorded in this war. The name "John Doe" is a placeholder for those whose names eluded the historical record.

Special Benefit: Has the Teamwork skill 25 .



Foster, Amos

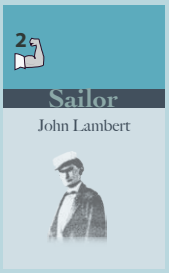
Acting Master Foster had command of *USS Satellite* during both the transfer of the *Submarine Propeller* from the Delaware River to Hampton Roads, and then as support for the submarine during June 1862's Appomattox River Raid.



Hunt, E.B.

In 1862, Hunt of the US Army Corps of Engineers designed a one-man submarine to assist in the removal of underwater obstructions. That fall, when underwater tests at the Brooklyn Navy Yard were unsuccessful, costing Major Hunt his life due to suffocation, the project's design was shelved as unworkable.

Special Benefit: When Hunt enters play, add a Black cube to the Fate Pool. This happens only once when he enters play, not each Mission.



Lambert, John

Born 1830 Dorchester, England. Emigrated w/ family to Philadelphia c. 1850. Joined US Navy 1859. 2nd Class Fireman/Stoker. Joined *Submarine Propeller/Alligator* crew in January 1862. Paid off in June, 1863.



McCarron, Philip

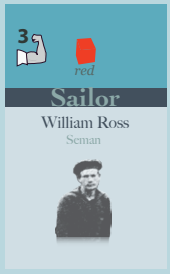
Born in Ireland, date unknown, Served on Submarine *Propeller/Alligator*, Nov (?) 1861 - June, 1863. Black cube awarded for McCarron's "Man of the Sea" nautical ability. Died sometime after 1900.

Special Benefit: During Mission setup, he adds a Black cube to the Fate Pool (before the Tow Check, if any).



Miller, Charles

Joined *Alligator* crew March 1862 – June 1863. Died after 1890.



Ross, William

Joined *Submarine Propeller/Alligator* crew November 1861, serving through May, 1862, transferred to *USS Memphis* October 1862 – October 1863.

Special 'Benefit': At the start of each Mission setup, he adds a Red cube to the Fate Pool.

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Selfridge, Thomas

USN Commander *USS Alligator* June to August 1862. Then assigned Mississippi Squadron, commanded river ironclads *USS Cairo*, *Conestoga* & *Osage*. After Civil War, led mapping expedition in Panama to survey routes for planned canal. Retired as Admiral, 1898.

Special Benefit: At the start of each Mission, add a Rally marker if Selfridge is placed in or adjacent to a space with the Steering Link.



Snow, Frank

1830 Rhode Island - 1900 (or later) Worked as needle maker and gunsmith. Joined *Alligator* crew March 1862 under Eakins.

Special Benefit: At the start of each Mission, he adds a Black cube to the Fate Pool (before the Tow Check, if any).



CSA Locations

Here you will find annotations about the locations selected for the game and their historical role in the larger war and its economy.

Unique Benefit: Some Locations provide you with a unique benefit as noted on the Location Card and explained below. Unless noted otherwise, you may use the benefit anytime during the Season.

Change Location & Unique Benefit: The Change Location action 50 recycles the Location Card for a new Location Card of your choice. You may not use the new card's unique benefit (if it has one) until the next Season.

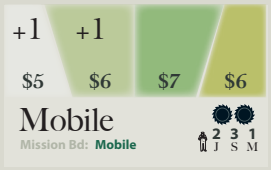
Charleston, South Carolina

Second most important seaport of the Confederacy after New Orleans. Prior to the start of hostilities, Charleston (known as the "Queen City") was a very active port for commercial shipping in the United States. During the Civil War, it was a major destination for Confederate blockade runners, and possibly the most fought-over port on the Eastern Seaboard. In the game, Charleston is a productive location for your machine shop. Because of its affiliation with the Confederate Navy and blockade running, the Spring & Autumn seasons will net you an extra Action each.

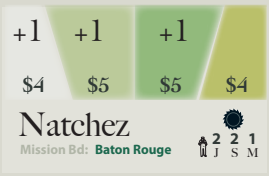


Mobile, Alabama

Though overshadowed by New Orleans as an international shipping and trading center, Mobile maintained its advantage as a premier shipping port for the Deep South, moving primarily agricultural products like cotton, indigo, sugar and tobacco. Because of its base in overseas trade, especially with the Caribbean and points south, Mobile's mechanical skills have a decidedly nautical bent, making it a good town to set up your machine shop, and Recruit your staff from. The mild winter and warm spring will net you an extra Action each, back-to-back.



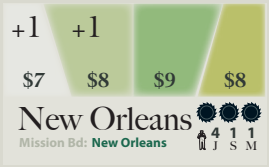
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Natchez, Mississippi

So, you managed to flee New Orleans just ahead of the clutches of Union General Benjamin "Beast" Butler. Your crew and your fishboat have fetched up in the Mississippi River port where "Cotton is King," Natchez-Under-the-Hill. The local Engineering Expertise is somewhat rudimentary, and with the Big Muddy's current constantly shoving you downstream into the waiting arms (and guns) of the US Navy, you and your crew are sure to have a long and tiring cranking session just to get back upriver to Natchez.

No New Orleans: Natchez is not available as a location until New Orleans is captured by the enemy. When the New Orleans card is removed (as instructed by the CSA Almanac), the Natchez Location Card becomes available as a location.



New Orleans, Louisiana

Before the Civil War, New Orleans was able to challenge New York City for the right to call itself the richest port in the Western Hemisphere. In the game, New Orleans is truly the Big Easy. As a shop location it has the largest seasonal earnings of any of the Southern locations. But beware. That faint rumbling you hear isn't Civil War drums; it is cannon fire. New Orleans is sure to be one of the first, if not THE first Southern city to feel the boot heel of Yankee conquest on its neck, usually by the Summer of 1862, if not sooner. Just make sure your team and your fishboat are long gone before it happens.

No Natchez: Natchez is not available as a location until New Orleans is captured by the enemy. When the New Orleans card is removed (as instructed by the CSA Almanac), the Natchez Location Card becomes available as a location.



Norfolk, Virginia

Being the pre-war home of the Union Navy you might expect an abundance of mechanics and journeymen for hire, but there is great demand. In the spirit of patriotic cooperation, rival shops will be willing to swap men when convenient (hence the unique benefit). But beware. Just because the US Navy gave up Norfolk at the start of hostilities, does not mean they won't want it back. Norfolk will be competing with New Orleans for the dubious honor of "First Port City Captured by the Yankees." The conquest could come as early as Winter of 1862.

Unique Benefit: Once each Season, during any phase, you may recycle a Journeyman (persona card) from play, allowing you to add a Mechanic (persona card). This requires an action but it costs no funds. This does not decrease the Training Level (it is not a Recruit action).



Petersburg, Virginia

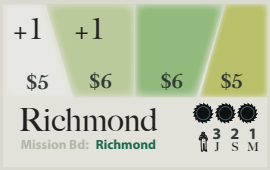
Its position on the Appomattox River gives it closer access to Federal targets on the Richmond Mission Board. When launched from the High Bridge, your fishboat is a mere five positions from the main Union port at City Point, and four if launched from Fort Clifton. Perhaps the best feature of this location is its longevity: it will be one of the last locations to fall to the Yankees.

Unique Benefit: When you perform a Change Location action, do not pay money (it is free). It still costs an action, and must be the last action of the Season. This benefit is in effect when you change location to or from Petersburg.

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Richmond, Virginia

The Capital of the Confederacy gives access to the Richmond Mission Board and the James River, a superb watercourse (uniform depth of Below Shallow along its entire length). Enemy target positions of Haxall (gunboats), Bermuda Hundred (gunboats and monitors), and City Point (all of the above plus ships and a wharf/dock) are all downstream. Though Richmond is close to the James River estuary and Chesapeake Bay, this is still river fighting. Perhaps most importantly, Richmond has the honor of being the last city likely to fall to the Yankees.



City Point & Diver: It is possible that your fishboat will be directed to attack the Wharf/Dock at City Point. If equipped with a Diver, your fishboat will enter the Tactical Board at Below Deep elevation. In that case, use the Below Shallow elevation for Detection.

Selma, Alabama

Per Confederate Chief of Ordnance General Josiah Gorgas in 1862, the Confederacy's Ordnance and Naval Foundry was moved here from Mobile. It manufactured naval goods such as cannon (notably the James Brooke Rifle), and shot and shells from the pig iron created in nearby north Alabama blast furnaces, and also constructed several Confederate ironclads. On April 2, 1865, a Union cavalry raid captured Selma and thoroughly destroyed all of the city's industry, including the Naval Works.



Unique Benefit: Once each Season during any phase, add a Boat Tile or Mechanism. This does not cost money, nor is it considered an Action, but the expertise requirement must be satisfied 47 . You may use this benefit even when Build actions are prohibited by the Fortunes of War result.

USA Locations

Here you will find annotations about the locations selected for the game and their historical role in the larger war and its economy.

Unique Benefit: Some Locations provide you with a unique benefit as noted on the Location Card and explained below. Unless noted otherwise, you may use the benefit anytime during the Season.

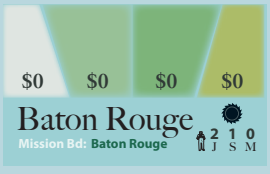
Changing Locations: The USA player may not perform the Change Location action. Instead, their location is determined by Assignment 62, which happens at the end of the Time Phase. It is allowed when Commissioned, and when the Fishboat is seaworthy, but is not mandatory (exception: if located in Washington and the Fishboat is seaworthy, the Assignment Check is mandatory). If NOT seaworthy, a Commissioned Fishboat is automatically Assigned to Washington (this too is mandatory). If not Commissioned, the USA player can't change their Location Card. At the moment of Commissioning, replace your Location Card with the Washington location card 52 .

Baton Rouge, Louisiana

Typical of the US Navy's "Forward Base Concept," Baton Rouge was seized in August, 1862, soon after the capture of New Orleans. After fending off attacks from Confederate guerrillas and regular troops, and even an attack by the Confederate ram *CSS Arkansas*, the Union navy aided in the successful defense of Baton Rouge by the Union Army, and the city was never in Confederate hands again.

Baton Rouge is a forward base, providing scant Engineering Expertise and no available income. Recruitment is limited since personnel are fully occupied and resources are hard to come by. This last shouldn't concern the Union player since replacing his boat's parts are handled by the use of purchase orders. Perhaps the largest challenge in Baton Rouge is moving upstream against the current of the Mississippi River to reach targets. On the bright side, your crew will have Big Muddy's help in propelling back towards home.

Mandatory Assignment Check when in Washington? Yes sir, the US Navy won't allow a seaworthy fishboat to lollygag in Washington while there's a war to fight!



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Boston, Massachusetts

One of the most productive seaports in North America, the Navy Yard at nearby Charlestown either constructed or converted more than 170 warships for the Union Navy. Your shop's expertise rating reflects the status of this excellent port and its abundance of skilled men and materiel. Because of its location, setting up your machine shop in Boston means that, once your fishboat is completed, your crew has access only to the Training Mission Board. Use that to your advantage, because once commissioned, the navy will send you elsewhere and training will be of the 'on the job' variety.

Unique Benefit: During the Autumn season, you may remove a Journeyman (persona card) from play, allowing you to add a Mechanic (persona card). This does not require an Action and it costs no funds. This does not decrease the Training Level (it is not a Recruit action).



Brooklyn, New York

The famed Brooklyn Navy Yard has a reputation of being as good a location for your machine shop as Boston, though some Boston fans might strongly disagree with your choice. Brooklyn's Engineering Expertise level is high, reflecting this seaport's bustling economy.



Cairo, Illinois

Built where the Ohio and Mississippi Rivers meet, this busy river port is the base for the Mississippi River Squadron's operations.

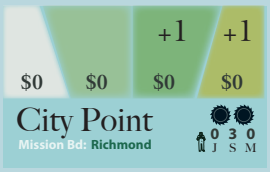
Unique Benefit: Once each Season, add a boat tile or mechanism. This does not cost money, nor is it considered a Build action (and it does not cost you an Action). You may use this benefit even when Build actions are prohibited by the Fortunes of War result. The boat tile's expertise requirement must be satisfied, but that requirement is reduced by 1. For example, a Section boat tile's expertise requirement is reduced to 1.



Charleston, South Carolina

(at sea on blockade)

Assigned duty with the South Atlantic Coast Blockade Squadron, your fishboat is stationed offshore from the "Gate of Hell," Charleston, where you must use the Charleston Mission Board. Blockade duty is arduous, sometimes boring and frequently punctuated with bouts of pure terror. **While at this location, use the Blockade section of the USA Almanac during the Fortunes of War Phase and the Time Phase.**



City Point, Virginia

This location is an assignment with the North Atlantic Blockading Squadron in the Chesapeake Bay at the mouth of the James River estuary. This forward base allows for some local expertise representing City Point's naval storage and repair facilities. Though the enemy navy's nautical targets of opportunity are slowly decreasing, the quantity and fiendish ingenuity of the Confederacy's obstructions, especially their Torpedo Bureau's mine fields in the James and Appomattox River system, continue to be a particular worry.

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Mobile, Alabama

(at sea on blockade)

This is the duty station for the West Gulf Blockade Squadron. Located in the Gulf of Mexico off the entrance to Mobile Bay, the blockade's commander, Admiral David G. Farragut, is gradually increasing his requirement for additional naval vessels to handle the growing number of entry and exit points that Southern blockade runners use to reach the city. **While at this location, use the Blockade section of the USA Almanac during the Fortunes of War Phase and the Time Phase.**



New Orleans, Louisiana

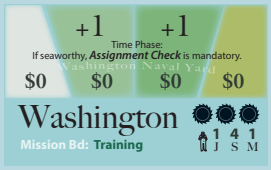
(at sea on blockade)

Duty with the West Gulf Blockade Squadron off New Orleans means you have managed a near-impossible feat of constructing, crewing and Commissioning your fishboat in record game time. Congratulations. Your missions with the West Gulf Squadron will use the New Orleans Mission Board. Your potential targets are gunboats, ironclads and a wharf/dock that is built under the very guns of two river forts. Perhaps you can take comfort that, barring unforeseen circumstances, the West Gulf Squadron will soon capture New Orleans, and your fishboat's assignment will most likely be moved east along the Gulf Coast to Mobile, or up the Mississippi River to Baton Rouge. **While at this location, use the Blockade section of the USA Almanac during the Fortunes of War Phase and the Time Phase.**



Washington, D.C.

Together with Brooklyn and Boston, the Washington Navy Yard is the Union Navy's premier construction and repair facility in North America. You may find yourself here when things are not going quite right, transferred from the blockade, or newly commissioned. You will benefit from the local resources available (recruitment and expertise rating). While here, take advantage of the training opportunity (Training mission board).



Unique Requirement: During the Time Phase, if the fishboat is seaworthy, an Assignment Check is mandatory. *Mr. Welles hasn't commissioned you to sit on yer arse!*

Wreck & Salvage? If a Mission ended in a **Lost** result 13, bringing the Wreck marker into play 59, assignment is automatically to Washington (this happens during the Assignment Check of the Time Phase). While the Wreck marker is in play, the Salvage action may be performed in subsequent Action Phases. It makes no difference upon which Mission Board the Wreck marker resides, salvage can take place while your location is Washington (it is presumed that the Navy transported the wreck to the Washington Navy Yard).

Rocks & Shoals: How to Avoid Calamity on Your Way to the Target

Crew: Crewmen that contribute Black cubes or Iron nerves or impressive Strength are assets. So are repairmen. You may also need men who can operate mechanisms.

Propulsion: Power Grade A or B should be sufficient, but be prepared to Rally the fatigued and panicked. Crank Easy when you can and fill the Fate Pool with Black cubes (they represent high morale and the confidence that comes with the feeling that all is well).

Nautical Conditions: Rough water is lethal, and it is more common in winter than in spring. Fill the Fate Pool with Red cubes if you must (Red cubes can save a desperate sailor's arse).

Turn About: After launching, if your fishboat's mission looks to be going poorly, know when to give up and go home. With a low Training Level, a failed mission can increase that level. Sometimes eluding the Lost result is a victory worth savoring.

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Fishboats

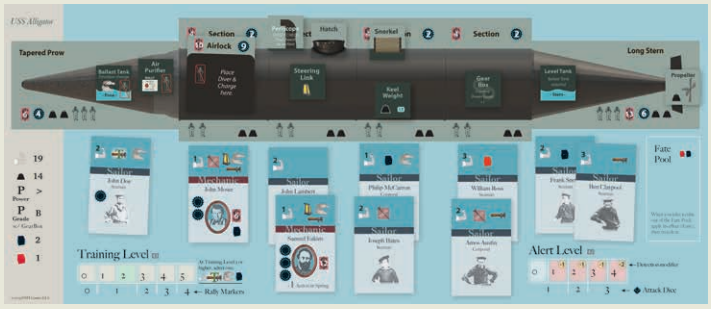
This section presents information about the infernal machines represented by the four fishboat displays.

USS Alligator

Laid down: 1859 (First prototype: 1857 as salvage vessel)
Designers: Brutus de Villeroi & Eulalie de Villeroi
Build Location: Neafie & Levy Shipbuilders, Philadelphia, PA
Launched: January, 1861
Accepted: June, 1862 (as *Submarine Propeller*)
Modified: July, 1862 – February, 1863, Washington Navy Yard
Sunk – (as *Alligator*) 2 April 1863, Cape Hatteras
Disposition: "On Eternal Patrol"

Specifications:
Displacement: 27.5 short tons, 35 short tons (submerged)
Length: 47 feet, Beam: 4.6 feet, Height: 5.6 feet (keel to hatch)
Propulsion: (1861) 18 oars in two banks of 9 each; (1863) Crank rod & propeller
Speed: (1861) 2 knots (2.3 mph); (1863) 4 knots (4.6 mph)
Complement: (1861) 1 Officer, 2 Divers, 18 Seamen; (1863) 2 Officers, 2 Divers, 11 Seamen
Weapon: Diver-deployed torpedo (electrically-detonated portable mine); one each per Diver.

Unique mechanisms on the *Alligator*: Airlock, Diver suit with helmet ("submarine armor"), Air Purifier, Deployable Buoyancy cylinders (x2), Deployable ballast tanks (x2), Modified crank rod & four-bladed propeller propulsion system (1863).



Invented by French engineer Brutus de Villeroi, and originally known by the name "Submarine Propeller." This vessel performed diving and surfacing tests in Philadelphia's Delaware River when it was seized by the local sheriff and his deputies, who had never before encountered such an unusual watercraft. The updated version was completed under contract with the US Navy, which accepted the vessel on its rolls in June, 1862.

De Villeroi's boat had the ability to deploy its ballast tanks filled with water through the bottom of the submersible, and when used in conjunction with the deployable buoyancy cylinders, the deployed ballast tanks resting on the sea floor interacted with the buoyancy cylinders to provide a stable and level base for the divers to work from. It was this method that gave the boat the means to both dive and surface without the use of dive planes.

While most sea-going watercraft used a propeller turned by a muscle-driven crank rod, initially the *Submarine Propeller* used eighteen oars in two banks on each side of the submersible, and rowed from within the submersible by brawny sailors. The blade opened when the rower poulled the oar's handle towards them, and folded upon itself when pushed away from the rower. Though clever, it wasan inefficient design given the *Submarine Propeller's* size. Maximum speed was only about 2 knots (roughly 2.3 miles per hour). This meant the crew was either helped or defeated by the flow of a river, or by the speed of coastal tides. This game does not include this failed propulsion system.

Another drawback was uncovered during the Union Navy's James River campaign of 1862, when it was learned that the *Submarine Propeller* required a bare minimum of eight feet of draft beneath its keel, or the divers could not deploy through the air lock when submerged. Combined with the propulsion issue, this was enough for Union Secretary of the Navy, Gideon Welles, who ordered the *Submarine Propeller* to be towed to the Washington Navy Yard, where supervised modifications to both systems would be made in 1862 and into the Spring of 1863. The cumbersome oar-driven propulsion system was replaced by a crank-powered four-bladed propeller with a full forty eight-inch thrust diameter. The new power design was very efficient, reducing the number of sailors required from eighteen to eight in providing sufficient muscle power to turn the crank rod, generating a speed of 4 knots (4.6 miles per hour).

In April of 1863, the *Submarine Propeller* received orders sending them to the Union Navy's North Atlantic Blockading Squadron at Hampton Roads, Virginia. During the trip, the infernal machine received a new name, the *USS Alligator*, signifying its acceptance as a vessel of the US Navy. On March 31, 1863, the *Alligator* joined its support tender in Hampton Roads. *USS Sumpter* towed the fishboat south to Port Royal, South Carolina. The US Navy's South Atlantic Blockade Squadron's commander, Flag Officer Samuel DuPont, was about to attack Charleston, South Carolina, and intended to use the *Alligator* to blast a path through the harbor's formidable defenses.

The *Alligator's* captain, Acting Master Thomas G. Eakins, had little time to prepare or train the crew, and the mission floundered before it got started. Two days after

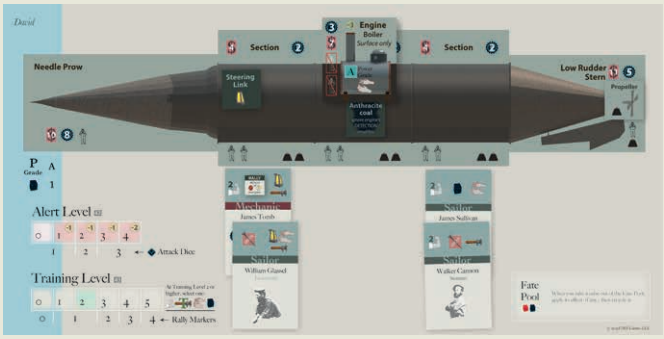
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embarkation, while rounding Cape Hatteras, North Carolina, a howling gale arose and enveloped the pair of ships. The resulting heavy seas and high winds tore at the *Alligator's* tow ropes, snapping the starboard hawser, causing the *Alligator* to shift violently in the *Sumpter's* wake. The additional strain threatened to sink both vessels, inspiring the *Sumpter's* captain to cut the remaining hawser loose, giving the *Alligator* to the Atlantic. Set adrift in the storm, the *Alligator* was soon lost from sight.

While the damaged *Sumpter* was able to make Port Royal, the *Alligator* was never seen again, becoming one of the first submarines on "Eternal Patrol," and joining so many other vessels in Cape Hatteras' "Graveyard of the Atlantic."

David

Type: Non-submersible Torpedo Boat
Builders: The Southern Torpedo Company: St. Julien Ravenel and Theodore Stoney, owners,
Build Location: Stoney Plantation, Cooper River, South Carolina
Accepted: March, 1863 as CSS David, privateer
Out of service: April, 1863
Disposition: Abandoned, April, 1865 Tradd Street wharf, Charleston, SC.
Length: 48 ½ feet , Beam: 6 feet, Draft: 5 feet
Propulsion: Compact, anthracite (smokeless) coal-fired steam engine
Speed: cruising at 10 knots (11 ½ mph), with an attack speed of 14 knots, (16 ½ mph)
Complement: 4 crewmen
Weapon: Lee-type canister torpedo; 70 to 130 lbs. of packed "rifle" gunpowder. Spar-mounted



Rather than building a submersible to approach an enemy vessel by stealth, a Confederate craft known as a "torpedo boat" would rely on speed to approach and then close with an enemy warship at night, delivering destruction and death with a spar-mounted explosive device known as a torpedo.

By 1863 the Confederacy already built and tested several designs of a torpedo boat; some had even been tried in combat. Being based on a pre-existing hull such as a small boat or canoe, these early designs had to have a steam engine mounted on it for propulsion. Two problems arose from this path. First, locating a steam engine of the required size and power output would be difficult. Second, on the approach or attack run, a small open boat would be easily recognized by the enemy ship's deck watch.

Dubbed the "David", an allusion to the Biblical character, and an expression of its diminutive size compared to its quarry, the Southern Torpedo Company's vessel was constructed some thirty miles up the Cooper River from Charleston, South Carolina, at the plantation and niter works owned by Dr. St. Julien Ravenel. Together with his partner, Theodore Stoney, Ravenel manufactured various sizes of the torpedoes then being used by the CSA and privateers.

Ravenel used the already-tested design of inventor Ross Winans' famed 1858 "cigar boat." The hull design adhered to the spindle or cigar shape first demonstrated with the Winan craft. Constructed of 1 ½ inch oak slats, the *David* tapered gradually to a cone-shape fore and aft.
The power plant was discovered standing idle at the nearby Northeastern Railroad's wharf. The railroad officials graciously sent along their chief mechanic to oversee the steam engine's proper installation and its connection to the boat's twin-bladed propeller. Despite the blockade, sufficient iron plating was available to give the torpedo boat an armored shell. The *David* was further painted a light "haze blue" to make her blend in with the surface of the ocean. She was ballasted so that her draft of five feet left just twelve inches of freeboard above the water. Unconfirmed reports also had the *David* equipped with ballast tanks fore and aft so that, when filled, the boat would be riding even lower in the water, and therefore that much harder to see.

Lieutenant William T. Glassel, formerly of the Confederate ironclad *CSS Chicora*, was picked to be the captain of the *David*. He and his crew of three were ready to be turned loose on the US Navy warships anchored just outside the entrance to Charleston harbor. Her target would be the South Atlantic Blockading Squadron's pride and joy, the steam frigate *USS New Ironsides*.

Ravenel had his own reasons for choosing the *New Ironsides* as the target. His family home in Charleston's (formerly) fashionable Battery District looked out across the harbor and bore witness to the daily destruction being visited upon the city's harbor defenses. While the screw sloops, monitors and gunboats of the US Navy each made their contribution to

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the ruins, it was salvos from *USS New Ironsides* that landed the heaviest blows from its fourteen fearsome eleven-inch Dahlgren smoothbore cannons. A seven-gun broadside fired by the *New Ironsides* could deliver fourteen hundred pounds of explosive shells a distance of two miles and more. The Yankee's iron monster, performing this task every five minutes, and at point-blank range, was gradually turning the fine clay-colored bricks of Fort Sumter into rubble and brick dust.

Glassel would get his chance (and Ravenel a measure of revenge) on the night of October 5, 1863, when he and his crew of three cast off the lines that moored *CSS David* to the Atlantic Wharf at the foot of Charleston's Broad Street. *David* was well and truly going to get its chance to smite "Goliath." Standing in the cockpit as it steamed past the rubble that was Fort Sumter, Glassel soon spied the *USS New Ironsides* riding at anchor just two miles off Cumming's Point on Morris Island. Glassel aimed for *New Ironsides'* starboard side amidships while calling for more speed. A warning call of, "Boat Ahoy!" from the *New Ironsides* deck watch was answered by Glassel with a double load of buckshot which killed the sailor who uttered the hail. A moment later, the spar with its infernal load struck low on the starboard aft side, snapping the spar in two. At almost the same instant, a thunderous roar split the October night, and a towering fountain of water erupted as a result of the explosion. When the smoke and spray cleared, the *New Ironsides* showed no outward sign of structural or mechanical damage. The geyser of seawater fell for the most part on the *David,* extinguishing her boiler's fire. Seeing this, Glassel gave the order to abandon ship. Two of his crew members, Engineer James Tomb, fireman James Sullivan both dove over the side and began to swim for shore, as did Glassel. The *David's* pilot, J. Walker Cannon could not swim, and therefore stayed with the vessel, all the while trying to avoid being shot by the now-fully awake and angered ship's company of the *New Ironsides*. Glassel and Sullivan were captured shortly thereafter, but James Tomb returned to the *David*, finding pilot Cannon still clinging to the craft for dear life. Tombs climbed aboard, bringing Cannon with him. Working under a hail of bullets, Tombs and pilot Cannon got the *David's* boiler fires restarted. Chuffing away merrily, the *David* was soon showing a clean pair of heels to an outraged South Atlantic Blockade Squadron as Tomb and Cannon steered their craft towards Charleston.

Though the *New Ironsides* appeared to be undamaged as a result of the attack, she was sent to the US Navy's base at Port Royal, South Carolina for inspection. There, it was discovered that the *David's* spar torpedo had caused severe cracks in the ship's supporting structure, even unseating two of the knees in the area where the ribs joined the keelson. It was further discovered that the explosion occurred opposite one of the *New Ironsides'* coal bunkers, which further dissipated blast effects and mitigated the resultant damage. Nevertheless, *New Ironsides* would be under repair in dry dock until the last days of the Civil War.

The design of the *David* was so successful that, from 1863 through to 1865, several more torpedo boats were constructed at Charleston, Mobile and at Richmond. The original *David* itself would fight again. The night of March 6, 1864 found her under the command of the intrepid engineer James Tomb who tried to sink the US Navy screw sloop *USS Memphis* that was covering Union Army barge operations on the North Edisto River. Though Tombs and the "David" succeeded in ramming the *Memphis* on her port quarter, the spar-mounted Lee torpedo did not explode, due to salt and sea air causing its fuses to corrode. The night of April 19th found Tombs off the Ashepoo River, stalking the 4,650-ton Union screw frigate *USS Wabash*. Though Tomb had made good progress in his approach run on the *Wabash*, the weather was becoming uncooperative. High winds created rough seas which threatened to break over the *David's* low freeboard and put out her boiler fires. Reluctantly, Tomb turned his craft away from the fat prize, and headed for port, once more empty-handed. The *David* and its offspring continued to be very active even through the final days of the Civil War.

Upon the fall of Charleston in 1865, Union troops entering the city found four of the torpedo boats either being serviced in dry dock, or beached at high tide at the Atlantic Wharf. Two were sent north to be studied by the US Navy, one soon to join the nautical museum at the US Naval Academy in Annapolis. Near the turn of the 19th century when the museum was moved to its new building, their *David* somehow went astray, and has not been seen since. There are period photos showing the other *David* as part of the Union "Mothball Fleet" at City Point, but nothing further is known of its existence. The other two *Davids* left behind in Charleston were moved to another wharf at the end of Tradd Street in the city. Eventually, both boats became part of the supporting road ballast when the street was lengthened in the early

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20th Century. In 1998, what was left of the two boats were found by a National Geographic archaeological team using ground-penetrating radar. Both were still buried under Tradd Street where they remain to this day.

H.L. Hunley

Builders: James McClintock, Baxter Watson, Horace Hunley and William Alexander
Build Location: Park & Lyons Machine Shop, Mobile, AL
Launched: January, 1863
Accepted: February, 1863
Disposition: Sunk - 17 February 1864, Raised – 8 August 2000.
Current location: Warren Lasch Conservation Center, North Charleston, SC

Displacement: 7.5 short tons, Length: 39.5 ft, Beam: 3.8 ft
Propulsion: hand-cranked three-bladed & ducted propeller
Speed: 4 knots (4.6 mph)
Complement: 2 Officers, 6 crewmen
Weapon: long spar (20 feet) mounting a torpedo – Singer type with percussive fuse



The third of the South's "infernal machines" (or "fishboats") created by the engineering team of James McClintock, Baxter Watson and Horace L. Hunley. Over the first part of 1863, this latest fishboat began to take shape at the Park & Lyons Machine Shop in Mobile, Alabama.

With the latest spar-mounted explosive "torpedo" at one end, a powerful three-bladed propeller shielded by a protective shroud at the other, this third fishboat from McClintock, Watson and Hunley was crewed by eight brawny and stalwart sailors, there to turn the propeller's crank rod. Their captain, standing under the forward hatch, peered through the glass observation ports, his hands on the controls that could send the fishboat in all directions. While conducting sea trials in Charleston Harbor, two fatal instances occurred, one that cost the lives of thirteen crewmen, including Horace L. Hunley himself.

Undaunted, McClintock, Watson and their team learned from each accident, making them more determined to see the project through to completion. In honor of their friend, the team named their fishboat the "Horace L. Hunley" and, moving their latest base of operations from Charleston Harbor up the coast to Breach Inlet, they continued to make ready for their first opportunity to strike a blow against the hated Yankee navy anchored just off-shore.

That opportunity came one cold and windy February night in 1864 when the *H.L. Hunley*, under the command of Lieutenant George L. Dixon, spotted the Union Navy's newest screw-powered sloop, the *USS Housatonic* looming out of the darkness. After maneuvering by stealth to aim the *H.L. Hunley* and zeroing in on his target, Dixon began his attack run on the unsuspecting Yankee vessel. Though spotted by lookouts, Dixon pressed the attack, striking the *Housatonic* on its starboard side below the waterline. Packed with over a hundred pounds of black gunpowder, the torpedo detonated and sank the *Housatonic* within fifteen minutes. The other ships of the US Navy's South Atlantic Blockade Squadron were soon busy rescuing the *Housatonic's* crew, and angrily hunting for the elusive culprit. Their search efforts were in vain; the Yankee navy never found the *H.L. Hunley,* nor did the Confederate fishboat ever return to Breach Inlet or the harbor. For the next one hundred thirty one years, the *H.L. Hunley* was lost to history.

Finally, in 1995 a dive team sponsored by author Clive Cussler's National Underwater and Marine Agency (NUMA) found the *H.L. Hunley's* last resting place four miles off the coast of Sullivan's Island, her nose pointed towards home. An extensive salvage operation was mounted. Five years later, the *H.L. Hunley* was gently raised from the ocean floor and returned to her home port of Charleston, her Eternal Patrol of one hundred thirty six years finally at an end. The remains of the eight members of her crew joined those of their comrades for an honored burial in the Hunley Memorial plot at Charleston's Magnolia Cemetery.

Today, the *H.L. Hunley* can be viewed at the Warren Lasch Conservation Center in North Charleston, South Carolina.

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Pioneer

Builders: James McClintock, Baxter Watson, Horace Hunley
Build Location: Leeds Foundry, New Orleans, LA
Launched: February, 1862
Accepted: March, 1862 as CSS Pioneer, privateer
Disposition: Scuttled 25 April 1862, New River Basin, New Orleans
Raised: 30 (?) April 1862 by US Navy
Disposition: Seized and held by US Navy 1862 – 1865. Sold for scrap, 1868.
Displacement: 4.6 short tons, Length: 36 feet, Beam: 3 feet
Propulsion: hand-cranked, ducted propeller with gearbox.
Speed: estimated at 4 - 6 knots (4.6 - 7 mph)
Complement: 3 crewmen (first iteration; proof of concept)
Weapon: towed mine of unknown manufacture



In 1861, Confederate President Jefferson Davis, together with several patriotic merchants and businessmen, offered cash bounties to sink blockading warships. The reward was as much as $50,000 per vessel sunk, perhaps higher. Naturally, this proclamation attracted the attention of a large number of engineers, as well as a great number of investors eager to get in on what looked like a bonanza.

Two such mechanics were running an engineering concern at the Leeds Foundry in New Orleans, Louisiana. They made steam gauges for riverboats and also, just recently, ammunition for their country's army. After a discussion on their prospects of success in undertaking such a venture, engineers James McClintock and Baxter Watson began a most eccentric project. Beginning in late 1861, McClintock and Watson together with their financial partner, wealthy lawyer and onetime customs agent Horace L. Hunley, designed and built what may have been the Confederacy's first submarine, a vessel that they suitably named the *Pioneer*. Measuring 36 feet in length with a slightly larger than 4-foot cylindrical diameter, it sported operable dive planes to control vertical movement and a rudder to control horizontal movement.

Muscle power turned a crank rod inside the iron hull, and a gearbox augmented the power delivered to a three-bladed propeller projecting from the stern. While McClintock and Watson cranked, Hunley stood under the forward hatch, steering the vessel while peering out through the hatchway's observation ports. It was Hunley who would also launch the "sting" in *Pioneer's* tail; a towed mine containing nearly one hundred pounds of black gunpowder trailing behind on a towrope. The plan was to find a target, align the hull and towrope for the best possible approach, and then Hunley would dive the *Pioneer* so as to pass beneath the target's keel, and raise her via the dive planes on the other side. By then the mine would make contact with predictable results. After test runs in the Mississippi River near the engineers' place of business, and mindful of the security of their project, McClintock & Co. took their fishboat up to Lake Pontchartrain for final testing. They were there when, on April 25, 1862, Union Admiral David Farragut's West Gulf Blockade Squadron began his assault on New Orleans. Six days later, the largest, richest city in the Confederacy and key to the Mississippi River was in the hands of the hated Yankees. Union ships pushed up river and along tributaries, while cavalry and detachments of infantry labored to establish a semblance of control over the terrain of New Orleans' hinterland.

In this chaotic moment, McClintock, Watson and Hunley pondered their choices. The prospects of packing their invention onto a railcar to escape the Yankees seemed precarious. Gathering their plans, documents, tools and what members of staff were willing to join them, they scuttled the *Pioneer* in the canal and took the train for the supposed safety of a still-blockaded Mobile, Alabama.

The *Pioneer* did not remain a secret for very long. Union troops soon discovered it at the bottom of the New Basin Canal. Upon its recovery, it was examined by US Naval engineers, who proclaimed that yes, the *Pioneer* was truly the threat that it was rumored to be. After the Civil War, the *Pioneer* was sold for scrap in New Orleans in 1868.

Today, a full-sized replica of the *Pioneer*, constructed from its original plans, can be seen at the Warren Lasch Conservation Center in North Charleston, South Carolina. It is located near the resting place of another infernal machine, the *H.L. Hunley*.

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- Before & Elsewhere -

Duikboot - Cornelius Drebbel – 17th Century - England
Mathematician and inventor at the court of England's James I, Drebbel is credited with inventing and operating the *Duikboot*, (Dutch for "diving boat). Though plans for it have been lost, it is conjectured to have been some 20 feet long, and covered with greased leather to make it waterproof. She used a pump that filled bladders with water for diving and air for surfacing. A team of twelve rowers used oars projected through the hull for propulsion. In the 1620's, Drebble tested in the Thames River at London, diving to 15 feet. She vanished from history after that demonstration.

Nautilus - Robert Fulton – early 19th Century - France
In 1800, American inventor Robert Fulton constructed a diving vessel named *Nautilus* for demonstration to Napoleon's French government. Cigar-shaped, Fulton's underwater craft was the first to use an all-metal hull, and sported a conning tower, She used hand cranking to power its four-blade propeller when underwater, and a collapsible mast with sails for running on the surface. Though testing was successful, Fulton ultimately sold her for scrap and returned to America. He is better known for inventing the steamboat.

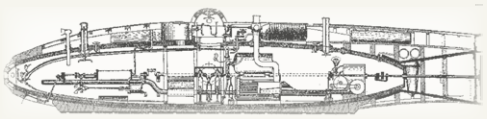
Turtle - David Bushnell – 18th Century - America
In 1775, Yale graduate and inventor David Bushnell constructed an undersea craft that used a foot treadle and a hand-crank propeller for propulsion. This *Turtle* also used a foot-operated ballast pump to dive and climb. In September 1776, she and her pilot Ezra Lee of the Continental Army entered New York harbor to engage the British fleet. Allegedly, Lee cranked to the warship *Eagle*, where he tried to screw a 150-pound charge onto her hull. Failing this, Lee floated the charge in the harbor, detonating it before submerging and retiring to safety. In Deutsche Kriegsschiffe, Robert Rosentreter questions the verity of this famous attack.

Zee Teufel - Wilhelm Bauer – mid-19th Century – Russia
Though he nearly died from a mishap involving his first submarine, Bavarian inventor and engineer Wilhelm Bauer was undeterred in his quest to build an underwater salvage vessel. In 1855, he travelled to Russia where he received backing to produce an underwater vessel, the *Zee Teufel* ("Sea Devil"). Over fifty feet long, she carried a crew of twelve, and sported an airlock, ballast tanks, and a foot treadmill powered propeller. Before she was lost at sea, she logged over 130 dives.

Plongeur – Simeon Bourgeois & Charles Brun – 1864 – Arsenal du Rochefort, France
Constructed at the French Naval Arsenal at Rochefort, France by French Naval engineers Simeon Bourgeois and Charles Brun, the *Plongeur* ("Diver") was over 146 feet in length and ran on a reciprocating piston engine powered by compressed air. She used the compressed air to fill and empty its ballast tanks as well as provide a breathable atmosphere for its crew. With a sturdy ram for a beak, *Plongeur* was also armed with an explosive spar-mounted torpedo that was electrically fired. Though plagued with stability issues due to her long length, *Plongeur* served as a test bed for French development of later submarine types. In 1867, a model of *Plongeur* was exhibited at the Paris National Exposition where it was closely studied by the author Jules Verne for the novel "20,000 Leagues Under the Sea." After serving in several roles for the French Navy, *Plongeur* was sold for scrap in 1935.



Ictineo II – Narćis Monturiol y Estarriol – 1865 – Spain
The second submarine constructed by Spanish inventor and political activist Narcis Monturiol y Estarriol in 1865, this submarine is unique for its use of a dual-engine design for its propulsion, a coal-fired steam engine for surface navigation, and an oxygen-free engine that used a chemical reaction that not only propelled her but provided heat and oxygen for its crew. After several test dives between 1865 and 1867, on 14 December 1867, she made a surface transit at between 3½ and 4 knots. Monturiol then dived the *Ictineo II* to a depth of 80 feet, where she remained for over seven hours. Though he installed a gun in *Ictineo II* and showed how it could be fired at several depths, he failed to interest the Spanish Navy. Out of funds, Monturiol was forced to declare bankruptcy and his inventionwas sold at public auction and then scrapped by her new owner to pay back taxes.



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Charleston. Wise is a conscientious and thorough researcher. His book was very helpful in my on-the-ground research examining the "Hunley's" base of operations at Conch Creek behind Breach Inlet.

Design Notes by Jeremy (Jerry) White

This is an *Enemy Coast Ahead* game. The concept is to immerse the player in decisions cogent to the time and place depicted by the game. Decisions are front-loaded into a planning segment, and then the player unleashes what they created by launching a mission. Action should culminate in a tactical segment that allows the player to see some detail and consequences, and provide a sense of tension as well as release.

Infernal Machine's planning segment is the campaign sequence of play, and instead of ending to allow the mission to launch, it pauses. Rather than present a discrete event during a war, this game spans the entirety of that war and uses it as an interactive backdrop to player decisions. Planning starts up again when the fishboat returns home or succumbs to its fate in the deep, and despite success or calamity, the war goes on. Military matters don't monopolize war, the battlefield and society itself are the site of dynamic change, and this game attempts to allow some of that cultural phenomena to impinge on the player's experience and influence their decisions. The Confederacy's doomed economy is manifest here, as is the gradual encroachment of the enemy as port after port shuts down. And war is not the end for those who survive, the outcomes in the Almanacs encourage the player to think about what will become of them at war's end. Having money is helpful enough to serve as motive. War offers profit opportunity to the conniving entrepreneur, and rarely do war-game designers enjoy an opportunity to include such motives in their depictions.

Underwater machines are core assets in the navies of the 21st century, and as with any technology tree, the historical roots were modest if not dubious. Here, the narrow iron hulls that carried bent and straining men into harm's way were death traps. Rather than an epic battle or decisive clash of arms, this game attempts to depict an anthrotechnological footnote: Humans inside machines, propelling them with their own arms and legs. The interior lit by a candle or a lamp or not lighted at all, with little knowledge of air inside the cramped hull or the enemy topside...we designers found this footnote an irresistible story.

Terror vs. Panic

Terror is a feeling, an intensity of fear, but it is not an action a person can take. One experiences it but does not perform it. A crewman with a Terror marker is nervous as hell but staying calm, for the sake of the crew and for their own sake. Their iron nerves allow them to handle the fear, to take it as part of the job hoping it will be over soon, for better or worse. We imagine fellow crewmen keeping an eye on iron nerve comrades, as best they can in the dim light of the fishboat's belly, watching them for signs of emotional distress. Iron nerves crewmen keep the rest of the crew in order, even while they bear an unfair distribution of mental fatigue. They are the bulkheads and rivets holding the crew together, keeping everyone calm and at their jobs, and the terror they feel is internalized while they devote themselves to the crank or the gear. Perhaps they are singing a foul-mouthed tune, or are sweating buckets, or are stuffing their hat in their mouth to keep their teeth from chattering as they do what they can to maintain composure in the face of terror.

The alternative is panic, which admittedly can be construed as a feeling, too. But here it is an action a crewman takes, and it prevents them from performing a job or crank effectively. Such a crewman is overtaken by fear; terror has them in its gut, squeezing and writhing them into a frenzy or a stony paralysis. A malfunction is more likely to emerge in a space with a panicked crewman, and their space is more likely to be incapacitated. Panic enters the fishboat when iron nerves are exhausted, and once the first crewman can't maintain his cool, it can spread fast like a contagion. Panic is certainly a feeling, but in this game it presents as an overflow or an excess that consumes a crewman and makes the fishboat less effective. One by one, panic can lead the crew to disaster, making the dreaded Escape Check more likely. And yet, once the fishboat must be abandoned, once the player is resorting to the Escape rules, they will find that a panicked crewman is determined and resolved to cheat doom. The very crewmen who panicked, thereby making disaster more likely, are the very same and very human culprits who will stop at nothing to shove others aside if it provides them a better chance of escape. In that panicked moment they think nothing of leaving their comrades behind in that floundering iron coffin.

Asymmetry

We're not sure which side is easier to play, or has a better chance of winning the game (whatever winning is supposed to mean here). We were keen to craft an asymmetrical experience to reflect the very different situation faced by North and South during the war. Location Cards, for example, gradually vanish when playing the Confederate side, but at least the CSA player can take their fishboat to any Mission Board still in play. In contrast, the USA player must work to get commissioned before they can have at the enemy, and once past that hurdle they may find themselves in locations they would prefer to avoid. When assigned to a blockade, which is a likely fate, they can't evade the lethal Tow Check. And once commissioned, the USA player is at the mercy of the Purchase Order table, which effectively requires two actions to actually procure parts for every one CSA action. Although the world is collapsing on the CSA player, the USA player must contend with their own Navy who has little confidence, patience, or perceived need for this new technology. Playing the Union side means overcoming the limiting historical tendencies that made USA fishboats merely a shadow of a footnote in the naval war, an untried potential. In contrast, the Confederacy is desperate to break the blockade, so desperate it is willing to support your crazy project even if nobody is surprised when you post the sad report of another lost crew.

Credits

Research: Ed Ostermeyer (with heartfelt thanks to Kellen Butler of the Warren Lasch Conservation Center, Charleston, SC)
Game Design: Ed Ostermeyer, Jeremy White
Layout & Art (game): Jeremy White
Layout & Art (box): Tomasz Niedzinski
VASSAL Module: Joel Toppen, Kevin Conway
TableTop Simulator module: Jordan Kehrer
Playtesting: Dan Coonen (*Excelsior class*), Steve Herron, David Kurtz, Bruce Mansfield, Pat Mulvihill, Mario Moya Sánchez, Jeremy Self.
Proofers: John-Paul Pizzica, Marco Poutré, Brent Pollock, Evan Yoak
Production Coordinator: Kai Jensen

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Malfunctions 34

Random Malfunction: Roll two dice and find the sum. If the malfunction applies to a component or feature that is not on the fishboat, treat as 'no malfunction.' Exception: During Enemy Response 11 and Concussion Check 7, treat no malfunction as a Leak 12.

2-5 Ballast Tank 6

Malfunction

- X + ■, or, **dive 1 Elevation level & if no Level Tank** P
- XX **Dive one level, and if no Level Tank** P
- XXX **+1 Leak** LEAKS! 12

Repair



remove

6-7 Steering Link 14

Malfunction

- X P
- XX P **& Target Check not allowed**
- XXX **Inoperable** *Dead in the Water* 21

Repair



+ X → remove

improved



remove

8 Gear Box 10

Malfunction

- X P
- XX **degrade Power Grade by 1**
- XXX **degrade Power Grade by 1**

Repair

May not be repaired during a mission.

9 Engine (boiler) 8

Malfunction

- X **Strain not allowed**
- XX **Inoperable** *Dead in the Water* P 21

Repair

If engine is fatigued, remove fatigue instead.



F remove



remove

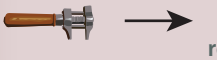
10 Engine (magnetic) 9

Malfunction

- X **Strain and Full not allowed** P
- XX **Inoperable** *Dead in the Water* P 21

Repair

If engine is fatigued, remove fatigue instead.



F remove



+ ■ → X remove

11 Dive Planes 7

Malfunction

- X **operator may not be fatigued**
- XX **Jammed; if Awash or Below, must Dive until repaired**

Repair



remove

And, if repairing while Awash or Below, + ■

12-13 Snorkel 13

Malfunction

- X P
- XX P
- XXX **inoperable**

Repair



+ ■ → X remove

14-15 Propeller 12

Malfunction

If boat has **Shroud**, *Shroud malfunction instead*

- X **degrade Power Grade by 1** P
- XX **Power Grade E** P
- XXX **Inoperable** *Dead in the Water* 21

Repair

Surface only

During Nav Phase, if Full or Strain, repairman panics P



remove

16 Hatch 10

Malfunction

Select any Hatch.

- X **Hatch inoperable.**
- XX **+1 Leak** LEAKS! 12

Repair

Surface only



remove

17-18 Weapon 15

Malfunction

As indicated on the Tow Cord or Spar marker. If Diver, treat as a ***Leak*** 12 *instead.*

Repair

May not be repaired during a mission.

19 Air Purifier 5

Malfunction

- X ■
- XX P
- XXX ■ P

Repair

May not be repaired during a mission.

20 Shroud 13

Malfunction

- X **no effect**
- XX **Fouled:** F
- XXX + F **to Crank Intensity**

Repair

Surface or Awash only

During Nav Phase, if Full or Strain, repairman panics P



remove

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