

**The “Battle of the White Sea”**  
**An After-Action Report for *Ironclads***  
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This document recounts a solitaire game using Yaquinto’s *Ironclads* rules, with some elements taken from Worldwide Wargaming’s *Shot & Shell* and the Excalibre Games reprint of *Ironclads Expansion Kit*. It depicts what might have happened if a British fleet of armoured frigates had engaged in battle with the assembled United States Navy, circa 1865. The name of the battle comes from the fact that the game was played on a magnetic whiteboard, using counterclips.

**Scenario Description**

The scenario is intended to see what would happen if the British ironclad fleet had gone to battle with the USN at its height, in the last stages of the American Civil War. The circumstances of why this occurs are left vague; at the end of this document I discuss some of the reasons why it was unlikely. The general idea is that the British fleet is trying to fight its way through the blockade and reach a Confederate port, possibly Charleston, North Carolina. They are met on the high seas by a large American (Union) fleet, including just about all of its major combatants. Both sides are seeking to destroy the enemy fleet in battle and establish naval supremacy in the theater.

**Choosing the Order of Battle**

The three publications noted above include a number of British ships, most of the armoured frigates. I chose to limit the British fleet to those that would be available in 1865, because that was the time when the American ships would be available. Also, the British ships in the countermix from after that date are much more formidable, and I thought it would be unwieldy to add the large number of American ships needed to balance the fight against them. The British fleet does include the ironclads built for the Confederacy but never delivered: *Stonewall*, *Scorpion*, and *Wivern*. Some of the British ships are listed as having different armament in different years. I chose the armament they would have in 1865, which was generally weaker than in later years.

I chose the American fleet by listing the available ships in descending order of point values and going down the list until the cumulative total was 125% of the British point value. I gave the American side a 25% bonus because I knew that this would be a battle of relatively small American ships against large British ones, and I believed (wrongly, as we will see) that the American ships would suffer a high loss rate. I included *U.S.S. Dunderberg*, even though she was never built. I also treated *U.S.S. Casco* as a monitor, as she was originally designed, instead of as a turretless ram, as she was built. Some of the ships in the American order of battle had been sunk by 1865, but I didn’t try to track this down. At the last minute I also threw in all seven torpedo launches in the countermix (Union and Confederate, but on the American side), just for the fun of it.

See the appendix for a full list of the ships on both sides.

## Rules Summary

*Ironclads* is a very detailed tactical game, at the individual ship level. Each ship has a data card with a wealth of information, including the type and firing arc of each weapon. A typical vessel will have twenty sections, each with its own armor rating.<sup>1</sup> Each ship also has hull, flotation, and crew values.

The rules as written are for a board game use a hex map with written simultaneous orders. In my game, I dispensed with the map and used the scale of one inch per “hex.” I set speeds at the beginning of the turn but executed movement and fire without written orders.

Combat resolution is process-heavy. One resolves the shot of each cannon separately. A typical shot will take four die rolls:

1. 2D6 to determine if the shot hits
2. 1D6 to determine the general area hit (hull, waterline, turret, casemate)
3. 1D6 to determine the specific section hit (bow, foreship, midship, aftership, stern)
4. 1D6 to determine the damage done

If the damage results in a penetration, special, or critical hit, additional die rolls determine the effects of these—which can sometimes require another die roll or two. Damage can range from reducing armor protection to very detailed losses involving engines, magazines, steering, or the weapons. Fire is considered to be simultaneous, with damage being applied after the combat phase.

## **Turn-By-Turn Narrative**

### Turn 0

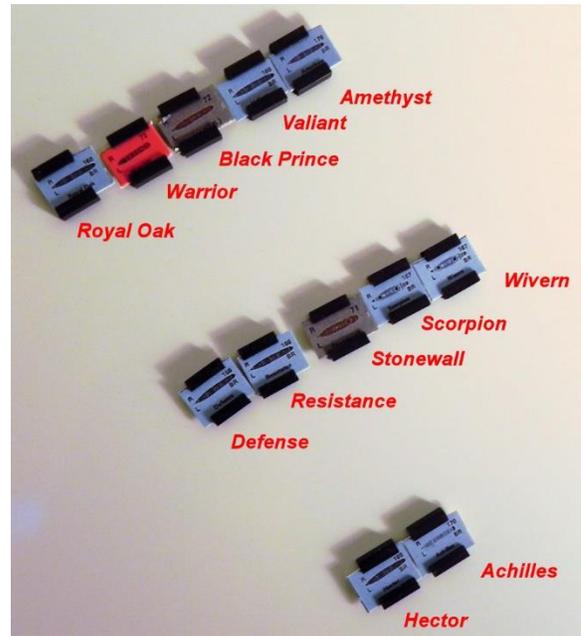
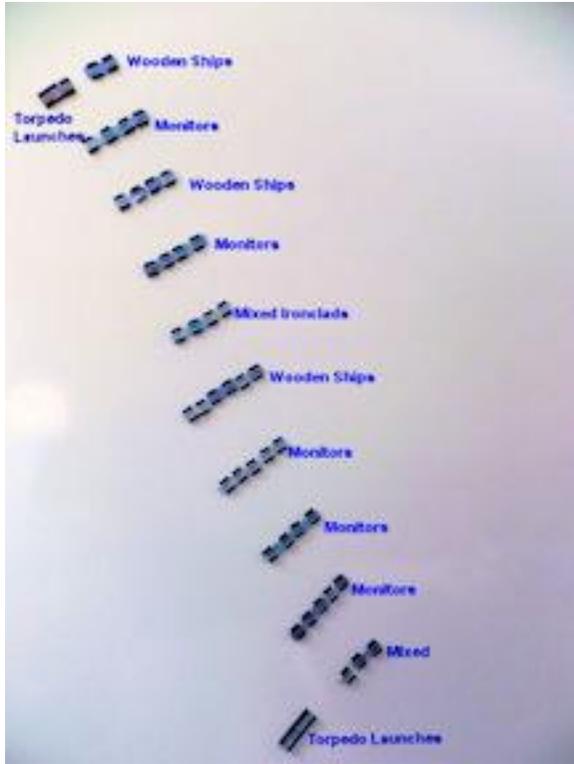
The 12 ships of the British fleet enter from the northeast in three columns. The port column consists of *Hector* and *Achilles*. The center is headed by *Defense*, followed by *Resistance*, *C.S.S. Stonewall*, *C.S.S. Wivern*, and *C.S.S. Scorpion*. The starboard column consists of *Royal Oak*, *Warrior*, *Black Prince*, *Valiant*, and *Amethyst*. All but that last ship are ironclads. All guns are loaded with solid shot.<sup>2</sup> The fleet is moving at speed 5, to accommodate the best maneuverable speed of the slowest ships.

The American fleet enters from the southwest, in 10 columns, 41 ships plus seven torpedo boats. The columns are sorted by maximum speed, with the fastest ships on the outside and the slowest in the center. With a few exceptions, the wooden and ironclad ships are in separate columns. Squadrons of torpedo boats trail behind each of the outermost columns. All guns are loaded with shot. The fleet is moving at speed 6, which is the maximum speed of the slowest ships.

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<sup>1</sup> One side (port or starboard) of a wooden vessel or armored frigate has five hull and waterline sections: bow, foreship, midship, aftership, and stern. That’s ten sections per side, for a total of twenty. A casemate ironclad will have something similar, except as casemate and armor, although bow and stern casemate sections are not duplicated by port and starboard. Monitors have waterline sections and four sections for each turret: front, back, left, and right.

<sup>2</sup> As opposed to explosive shell. Shot has greater penetration ability but does less damage if it does penetrate. It is more suitable for long-range fire at the start of the battle.



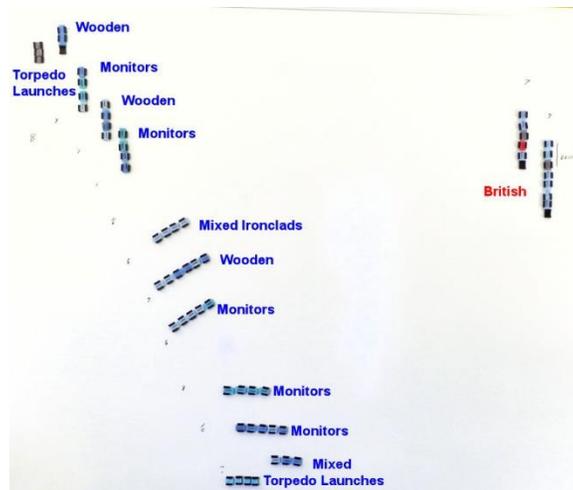
American and British Dispositions

### Turn 1

The British increase speed to 7 and begin forming a line of battle to port. The American plan is to use the faster ships to envelop the enemy while the slower ones close directly. The American columns that can move faster increase speed to 7 or 8, depending on their engine capacities. The three starboard columns turn east, the four port columns turn north, and the three in the center hold on their courses.

The British fire their long range guns at various lead ships. Most of them miss, except for a few that hit *New Ironsides*. However, no damage is caused.

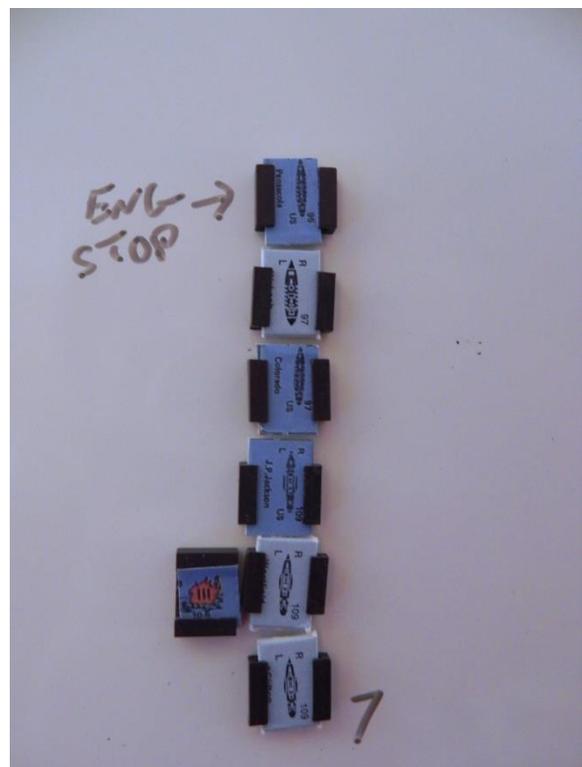
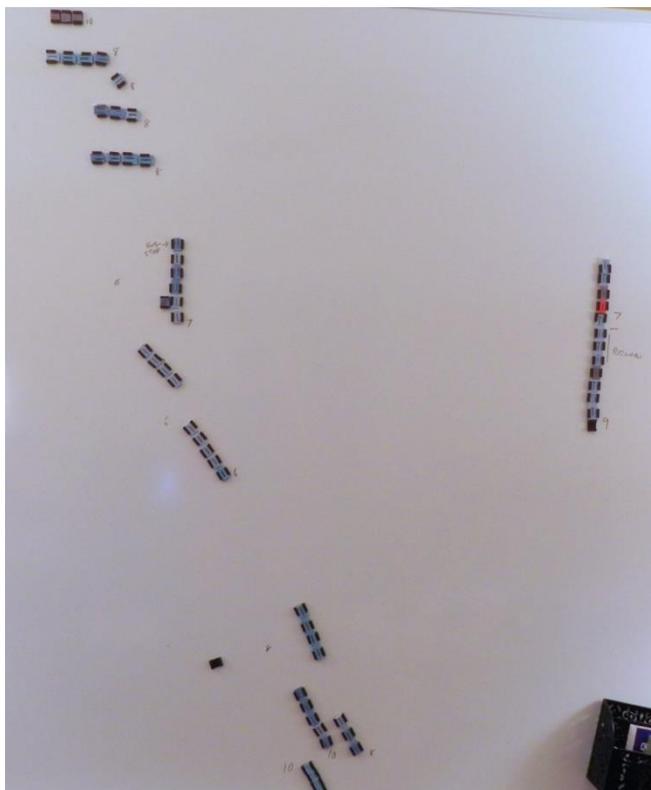
*Puritan's* 20 inchers score two hits on *Royal Oak*, damaging her armor. *Nippon* also dents that ship a bit. The two *Mondadnock* and two *Casco* class monitors score 5 hits on *Amethyst*, causing a bit more damage, but nothing substantial.



Turn 1

Turn 2

The British form up into a single column, heading south. The American columns to the south turn to a southeastern heading in order to avoid closing while the rest of the fleet is catching up. The two columns of *Passaic* monitors in the center also turn southwest, but the wooden ships turn north in order to keep open the range and not mask the monitors' fire. The northern columns turn east at the best speed they can make.



Turn 2

*Hector* is the target of long-range fire from the southern group. She takes a number of armor and hull hits. *Amethyst* continues to accumulate damage from the rest of the fleet. She has lost all of her hull foreship protection.

*Achilles* and *Hector* bounce shot off *Dunderberg* but fail to do any damage. *Defense* has much better luck firing on the wooden *Clifton*. The American ship loses one speed point and a 32 pounder. *Resistance* does much worse damage to *Westfield*: She loses her 100 pounder and suffers a magazine explosion. She has a level III fire, lots of hull and floatation hits, and loses three points of speed. *Royal Oak* gets only one hit on *Colorado*, but it destroys one of her 8 inch smoothbores. *Warrior* does some minor damage to *Wabash*. *Black Prince* bangs up *Pensacola* and then gets a lucky hit that stops her engines. *Valiant* scores a hit on *Monadnock's* Z turret but causes no damage. *Amethyst* fires her battery of 6 inch rifles at *Wabash*, splintering some timber.

### Turn 3

The British line moves southeast at speed 9 to try to intercept the American southern columns. Those units cross the British line of advance. The other American units turn southwest and try to close with the enemy.

*Dunderberg* scores a few hits on *Hector*, destroying one of her bow pivot guns. *Harriet Lane* scores some hits with her 20 pdrs, but they are too puny to do any damage. *Monticello* also scores a hit, damaging some armor. The first squadron of five *Passaic*-class monitors are now in range. They score 3 hits with 15-inch Dahlgren smoothbores, 2 with 11-inch, and 1 one with *Lehigh's* 150 pdr Parrot rifle. They bang *Hector* up in various ways, notably destroying one of her broadside 68 pdrs. The three *Passaics* in the second division can fire only their 15" guns, although *New Ironsides*, at the head of the column, is in range with her 11-inchers. Two 15-inchers hit, plus 5 11-inch, and both of *New Ironside's* rifles (150 pdr and 60 pdr). The combined fire causes more attrition, but nothing special.

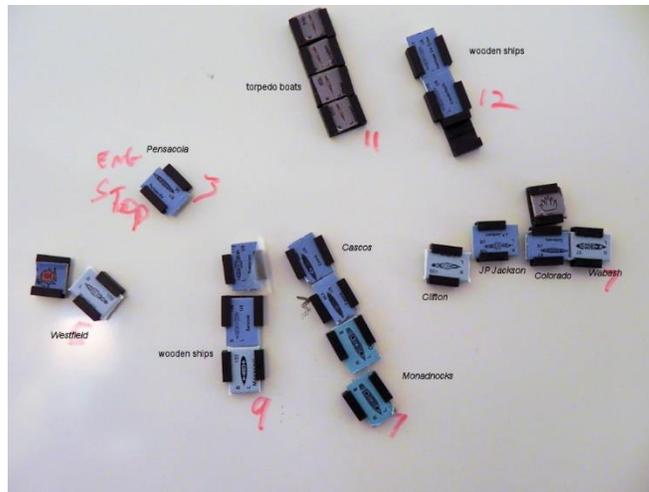
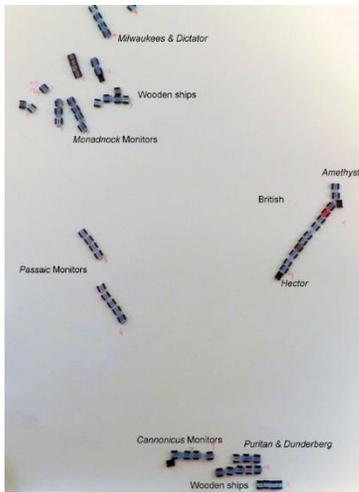
*Wabash* scores one long range hit on *Amethyst*, destroying the protection of a section and doing hull damage. *Vanderbilt* also scores hits on *Amethyst*, causing considerable damage and reducing her speed to 1.

*Hector* scores one hit on *Saugus's* turret, causing minor damage.

*Valiant* fires on *Nahant* but does no damage.

*Achilles* and *Wivern* score hits on *Wabash*, doing minor damage.

*Defense* scores four hits on *Colorado*, setting off a magazine explosion that leaves her on fire with less than half her floatation.



### Turn 3

*Resistance* scores four hits on *J.P. Jackson*, destroying her bow pivot gun and causing considerable hull damage. *Warrior* fails to score any damage. *Black Prince* has better luck, giving *Jackson* such a battering that most of her floatation is destroyed.

*Scorpion* gets one hit on *Clifton*, again causing minor damage. *Royal Oak*, now firing shell, also scores hits on *Clifton*, without any dramatic results.

*Stonewall* manages a hit on *Catskill* with her mighty 300 pdr, badly damaging the monitor's floatation and reducing her speed.

*Amethyst* fires her battery of 6-inch rifles at *Nahant*, but the monitor's low profile ducks all the shots.

### Turn 4

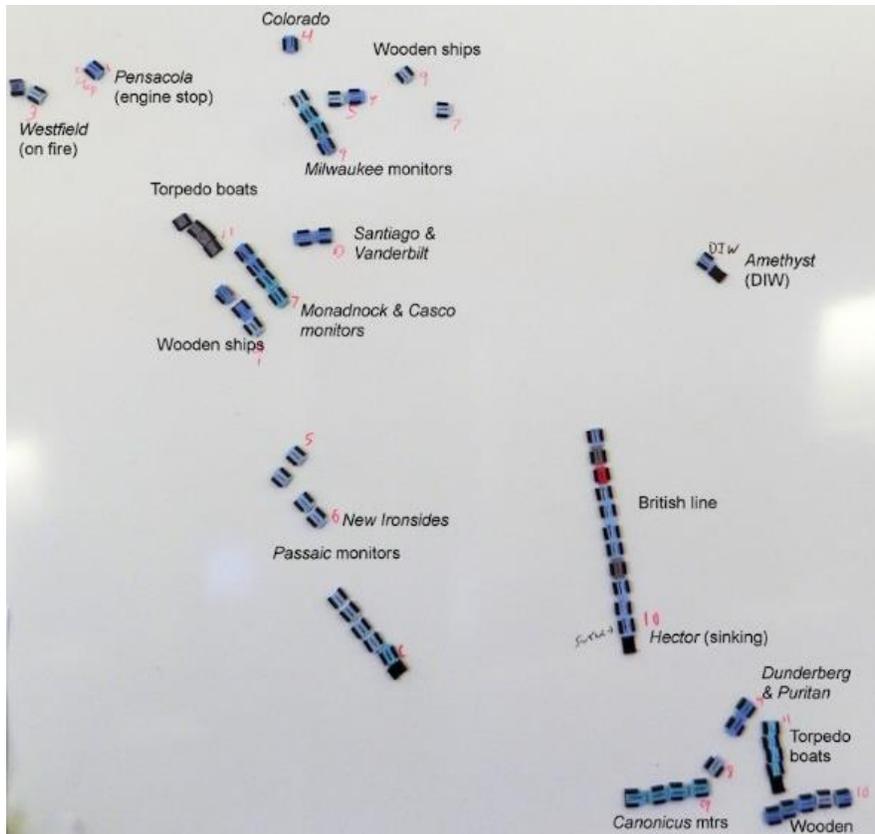
The British line turns directly south and gets into knife-fighting range with the Americans. *Amethyst* turns east and starts to limp away. The southern American line crosses the British T, while the torpedo boats swing around to get in position for a run-in. The rest of the American fleet chases after the British at the best speed they can, except for the badly damaged ships limping away.

*Hector* fires one of her 7-inchers at *Dunderberg*, but even at this range she can't dent the armor. Her broadside 68 pdrs are now within range of *Lehigh*, but the low-lying monitor is still hard to hit; she does no damage.

*Valiant* fires at *Nahant*, but, again, the shot splashes all around the American cheese box.

*Achilles* scores a hit on *Puritan* but can't damage her armor. Her broadside is directed at *Passaic*, but only one of her 110 pdrs hits, causing slight armor damage.

*Defense* scores three hits on *Weehawken*, denting her armor a bit.



#### Turn 4

*Resistance's* three hits on *Patapsco* have much the same outcome.

*Royal Oak* finds *New Ironsides* to be easier to hit than the monitors, but the damage is minor.

*Warrior* makes *Montauk's* turret ring but causes no damage.

*Black Prince* bounces a single 70-pound cannonball off of *Nantucket's* turret.

*Stonewall* is reloading her 300 pdr, but she fires her 70 pdrs at *Dunderberg*. They both hit, but they are too weak to cause damage.

*New Ironsides* can bring only her forward guns to bear on *Black Prince*. They score three hits, causing some minor damage.

*Wachusett*, *Niphon*, *Susquehanna*, and *Clifton* score long-range hits on *Amethyst*, destroying one of her guns and causing progressive damage to her hull. She is now dead in the water

*Santiago De Cuba*, *Vanderbilt*, *Chickasaw*, *Dictator*, *Somerset*, *Mississippi*, *Casco*, *Tunxis*, *Onondaga*, and *Monadnock* fire all of their guns at *Valiant*, destroying one of her 7" rifles and causing some armor and hull damage.

*Dunderberg* fires a full broadside at *Hector*. She is battered by 11- and 15-inch Dahlgrens. She loses her forward pivot guns, 3 speed boxes, lots of armor, hull, and crew. She has no steam

power for three turns. *Monticello's* and *Harriet Lane's* light weapons add to the mayhem. Then the *Canonicus* monitors (*Canonicus*, *Saugus*, *Tecumseh*, and *Manhattan*), at the head of the "T", add their fire. By the time their 15-inch Dahlgrens finish their work, half of *Hector's* crew are dead, and the ship is sinking.

*Puritan* has finished reloading her 20-inch Dahlgrens and lets fly at *Achilles*. Her armor takes a battering, and she loses two speed boxes. *Lehigh* hits *Achilles* from the other side, causing armor, crew, and hull damage.

*Passaic* fires at *Defense*. She takes substantial armor and floatation damage.

*Weehawken* inflicts some minor damage on *Stonewall*.

*Patapsco* scores some minor damage on *Scorpion*.

*Montauk* scores armor and hull damage on *Resistance*.

*Nantucket* inflicts minor damage on *Wivern*.

*Nahant* fails to score any hits on *Royal Oak*.

*Catskill* hits *Warrior* but does no damage.

*Colorado* extinguishes her fire. *Westfield's* continues to rage.

### Turn 5

The British line begins a U-turn in column back towards the northeast, in order to move away from the *Passaic* monitors and to open up their broadsides to attack *Dunderberg* and the *Canonicus* monitors. The southern American columns follow, with the wooden ships putting more distance between them and the enemy. *Harriet Lane*, trying to follow *Puritan* and *Dunderberg*, is left uncomfortably close to the British ships. The southern torpedo boats decide it's time to make their move. They lower their spar torpedoes and run for hell-for-leather towards the British line. Three of them make contact, with *Stonewall*, *Scorpion*, and *Black Prince*.

The rest of the American fleet continues its attempt to close the range, despite the British speed advantage. Some of the wooden ships head straight east, so as not to close the range too quickly, ahead of the ironclads.

The American ironclads are all reloading after the previous turn's fusillade.

*Vanderbilt* fires a shell from her forward 100 pdr at *Amethyst*, which does more than enough damage to sink her.

*Santiago De Cuba* fires her small Parrot rifles at *Wivern*. She scores one hit and does more damage than one might expect, but still nothing substantial. *Harriet Lane* hits her from the other side and causes more ablation.

The rest of *Vanderbilt's* battery is directed against *Resistance*, doing some armor damage. *Clifton* scores a long-range hit on *Resistance* with her 30 pdr rifle and causes a little more.

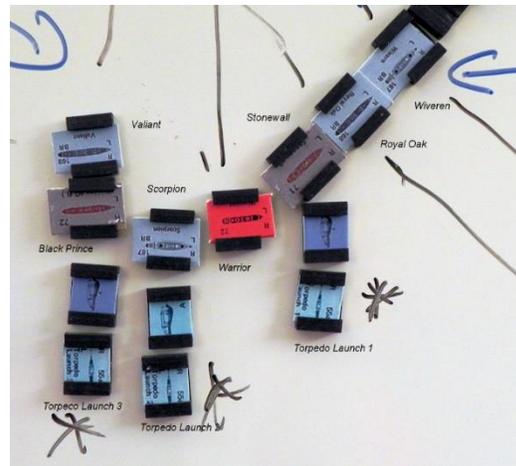
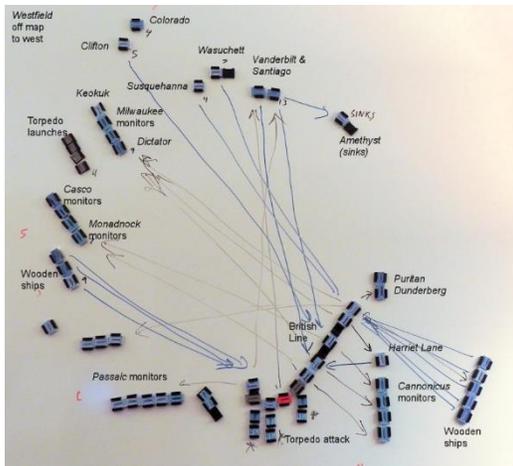
*Mississippi's* 10-inch Dahlgren does minor damage to *Valliant's* armor. *Somerset's* 9-incher hits but has no effect; nor does *Saranac's* 20 pdr rifle. *Susquehanna* makes a lot of racket with a full broadside of 9-inch smoothbores, 100 pdr rifles, and a 6-inch rifle, but the results aren't much better.

*Varuna*, *Wachusett*, *Monticello*, *Mount Vernon*, and *Niphon* fire on *Achilles*, banging up her armor all over her starboard side but not diminishing her capabilities.

The plucky little torpedo boats fire at their targets with their pitiful 12-pounders. One puts a dent in *Scorpion's* armor.

*Achilles* fires its starboard bow 110 pdr at *Dunderberg*. Even at point-blank range, the American armor is impervious to the attacker's heaviest gun. She directs her stern starboard 110 pdr against *Saugus* but fails to hit the low-lying monitor. Her starboard broadside of smoothbores has more luck firing at *Niphon*. The wooden vessel suffers considerable damage to her armor, hull, crew, and floatation, losing two speed boxes. In such a target-rich environment, *Achilles* also finds uses for her port guns. Her stern 110 pdr hits *New Ironsides* but causes no damage. Her forward one fails to hurt *Dictator*.

*Scorpion's* battery of 9-inch rifles was not designed to fend off torpedo boats. However, at this range, it is hard to miss. *Torpedo Launch 2* disappears into a cloud of splinters.



Turn 5

*Wivern* directs her turrets at *Saugus*, scoring two hits. She takes damage at the waterline and her turret face.

*Valiant* hits *Lehigh* with her stern 7-inch rifles, battering her turret armor. Her bow port rifle hits *Vanderbilt*, giving her moderate damage.

*Defense* fires a full starboard broadside at *Harriet Lane*. The wooden target takes heavy damage, losing most of its hull and crew. Her speed is cut more than half. *Defense* also fires its port 110

pdr and 40 pdr rifles at *Dictator*. She achieves a single hit, which causes some floatation damage.

*Resistance* fires her full starboard broadside at *Saugus*. The monitor's armor is battered, but no serious damage is inflicted. She, too, fires her port rifles at *Dictator*, also failing to score damage.

*Royal Oak* fires her starboard broadside at *Montauk*. Her 68 pdrs make a racket, but the monitor receives minor damage to her armor. She fires her port rifles at *Monadnock* but causes no damage.

*Warrior* fires its rifles at *Santiago De Cuba*, but they get only one hit, and that does no damage.

*Black Prince* is occupied with the torpedo attack. It takes three hits from her 68 pdrs to put an end to *Torpedo Launch 3*. She also fires her port rifles at *Monadnock*, resulting in slight armor damage.

*Stonewall*, like *Scorpion*, has few but heavy guns. They are all directed against *Torpedo Launch 1*. That boat meets the same fate as its companions.

Out on the fringes of the battle, *Westfield*'s fire level increases to IV.

#### Turn 6

The British line turns east, to run from the approaching American columns and open up their broadsides to attack the *Canonicus* monitors. Those targets curl their line around towards the southeast in order to open up the range. The wooden ships that had been behind them run to the east and then turn northeast, crossing in front of the British line. *Nippon* and *Harriet Lane* both try to limp out of the way. *Puritan* and *Dunderberg* move opposite to the British line and end up heading south, aft of the British. The wooden ships to the north hold their range, while all the slower ships pound in the direction of the enemy. The remaining torpedo launch from the previous attack joins up with the four launches steaming from the north.

*Royal Oak* fires its port 110 pdrs against *Wabash* and its starboard bow 110 pdr at *Manhattan*. *Wabash*'s timbers are pretty well splintered, and she takes hull damage, but her functioning is not impaired. *Manhattan* takes some armor and floatation damage.

*Warrior* follows *Royal Oak*'s example, firing her starboard forward 110 pdrs at *Manhattan* and her entire port broadside at *Wabash*. *Manhattan*'s turret gets banged up a bit. *Wabash* is again roughly handled but still operating.

*Black Prince* also finds *Wabash* to be the convenient target. The damage continues to accumulate. Her speed drops one point, and her rudder jams to the right.

*Stonewall* is reloading her 300 pdr. She fires her 70 pdrs at *Manhattan*, achieving one hit, which adds another dent to her turret armor.

*Achilles* fires her starboard broadside at *Saugus* and her port at *Vanderbilt*. A lucky hit on *Saugus* rings the chimes of the pilothouse. No damage is done, but the crew is so shaken that the ship must stay on the same heading and slow to half speed for three turns. *Vanderbilt* takes damage all along her hull.

*Scorpion* and *Wivern* are both reloading their guns this turn.

*Valiant* fires her stern 7-inch rifles at *Puritan* and its port broadside at the hapless *Wabash*. *Puritan* shrugs off two hits with minor armor damage. *Wabash* is at extreme range for the 68 pdrs, and no additional damage is done.

*Defense* fires her starboard broadside at *Tecumseh* and her port at *Santiago De Cuba*. *Tecumseh* gets away with a little damage to her turret. *Santiago's* hull timbers are scoured away, and she loses two speed boxes.

*Resistance* follows her sister ship's lead and fires her port broadside at *Santiago De Cuba*. The continued pounding destroys her starboard wheelhouse and stops her engine. Her cumulative damage is such that if she ever gets her engine started, her maximum speed will be five points lower—and without a starboard paddlewheel, she will steam in circles. *Resistance* fires her starboard broadside at *Manhattan*. The monitor takes a little more armor damage.

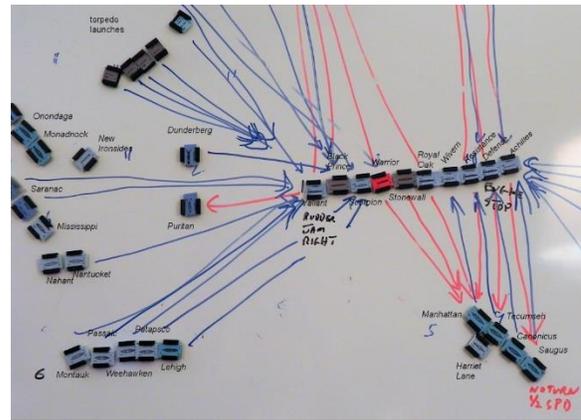
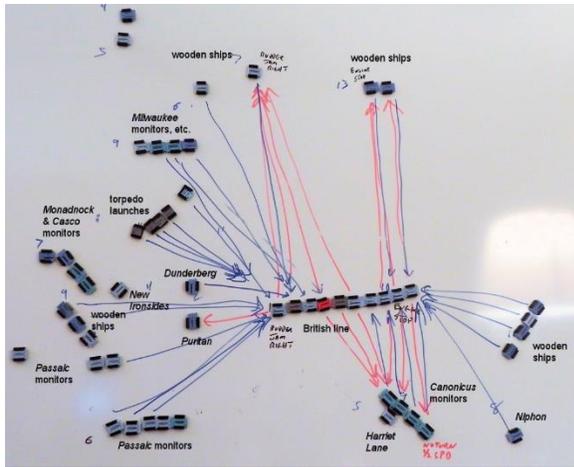
The *Canonicus* class monitors spread their fire among the ships at the head of the British column. All are close enough to double the penetration of their 15-inch Dahlgren smoothbores.

*Saugus* fires at *Achilles*. The cumulative pounding has destroyed her starboard midship hull armor. She loses one of her starboard 10 inch smoothbores. *Vanderbilt* also answers *Achilles'* broadside with one of her own. While most of her shots hit, they lack the penetration power to do more than damage the armor a little. *Varuna*, *Mount Vernon*, *Niphon*, *Wachusett*, and *Monticello* all fire at *Achilles*, although all except the last two can bring only their stern pivot guns to bear. They continue wearing away her armor and destroy one of her 10 inch smoothbores.

*Canonicus* fires at *Defense*. One hit destroys a 68 pounder; the other stops her engines. *Santiago De Cuba* also fires at *Defense*, but her light weapons achieve only minor damage to her armor.

*Tecumseh* fires at *Resistance*. She's battered in armor, hull, and flotation but her performance is unimpaired.

*Manhattan* fires at *Wivern*. She takes a nasty waterline hit that reduces her speed by four.



Turn 6

The *Passaic*-class monitors are well behind the British. Some are blocked by the scrum of ships trying to catch up. Most of them fire on *Valiant*, the “tail-end Charlie.” *Weehawken* scores a hit that does some hull damage. *Nantucket* scores two hits on her waterline, jamming her rudder. *Patasco* and *Montauk* score hits that cause hull, flotation, and crew damage. *Winnebago*, a *Milwaukee* class monitor, scores four hits with her 11-inch Dahlgrens. These hit the less damaged port side and mainly hurt the armor.

*Passaic* and *Lehigh* fire at *Scorpion*. She takes damage to her stern armor, which is now quite thin. *Chickasaw* also scores hits, but not in the same sections.

*Wabash* fires at *Black Prince*. Her broadside scores 12 hits, but long range fire from her 9-inch Dahlgrens has little effect on the target’s armor. Various sections are dented a bit. *Clifton* and *Susquehanna* have similar luck with their 100 pdr Parrot rifles. *Dictator*’s 15 inch Dahlgrens are more effective, completing the erosion of *Black Prince*’ port stern armor. *Dunderberg* also joins in, having reloaded her heavy guns with shell. Although the damage is substantial, including the loss of a 68 pdr, they aren’t as spectacular as hoped. The target is a little too far away for the 11-inch Dahlgrens to penetrate easily while firing shell. Even so, the cumulative damage to *Black Prince* has reduced her speed by two.

*Saranac*’s forward 20 pdr Parrot scores another hit on *Valiant*, adding a bit to her hull damage. *Somerset*’s 9-inch Dahlgren hits an undamaged section of *Valiant*’s armor and accomplishes nothing. The cumulative damage to *Valiant* this turn has reduced her speed by three.

Just to show that their hearts are true, the five remaining torpedo launches pop away with their 12 pdr smoothbores. They score four hits, two of which do some flotation damage.<sup>3</sup>

*Westfield*’s fire continues to increase. With most of her hull burned away, the crew abandons ship.

<sup>3</sup> In game terms, they have a penetration rating of 1, and they hit waterline midship, with armor of 15. Minus 14 is the lowest column on the table that can cause any damage at all. For each of the two shots, the damage roll was a 6, which meant a roll on the “special” table, resulting in some real damage.

## Turn 7

The British line is losing its cohesion as ships slow or are disabled. The main line turns southeast in order to close with the *Canonicus* class monitors while they are reloading. The lead three ships pull further away from the rest of the column. *Wivern*, with speed reduced to 6, pulls out of formation and heads southeast independently. *Defense*, without steam power, uses the last of her headway to turn north, so as to expose her less-damaged port armor to the oncoming enemy ships. *Valiant*, with a stuck rudder, circles in place.

The *Canonicus* monitors don't cooperate with British plans; they scamper to the west. *Saugus* is on a straight southeastern heading while its bridge crew recovers. *Puritan* heads straight east, but *Dunderberg* comes about to the northeast, so as to expose her loaded starboard broadside. The *Varuna* column heads north and then northwest, trying to balance keeping their distance with putting the enemy in their broadside arcs. *Vanderbilt* comes about to the west to expose her less-damaged port side, but she ends up dangerously close to *Defense*. The *Passaic* class monitors head southeast, followed by the *Monadnocks* and *Cascos*. This movement totally masks the *Mississippi* column of wooden ships. *Dictator*, the *Milwaukees*, and *Keokuk* continue steaming east. *New Ironsides* tries to get the enemy in her broadside arc, but she is hampered by her slow speed. The torpedo launches head southeast, looking for an opportunity to dash in. A scattering of damaged wooden ships to the north do the best they can.

*Dunderberg* fires at *Stonewall*. The American 15-inch Dahlgrens destroy most of her stern armor, but the 11-inchers cause only minor damage.

*Puritan*, finally reloaded, lets fly at *Scorpion*, with shell. One of her precious shots misses, but the other hits *Scorpion* at the waterline, destroying most of her armor and doing enough floatation damage to reduce her speed by two.

*Varuna* fires at *Defense* from her vulnerable starboard side. The 8-inch Dahlgrens and 30 pdr Parrots destroy a 68 pdr, reduce her armor further, and do a considerable amount of floatation damage. If she does get her engine started again, she will be two points slower because of damage.

*Mount Vernon*, *Monticello*, *Wachusett*, and *Niphon* fire at *Black Prince*. She accumulates considerable damage in most areas and loses three of her stern portside guns.

*Onondaga*, *Monadnock*, *Cusco*, and *Tunxis* fire on *Valiant*. Her portside armor is scoured, she loses steam power and one of her starboard 68 pdrs. However, the worst of it is that she suffers a magazine explosion, setting off a level III fire. Her cumulative damage is such that she will not be able to move even if her engine is restarted.

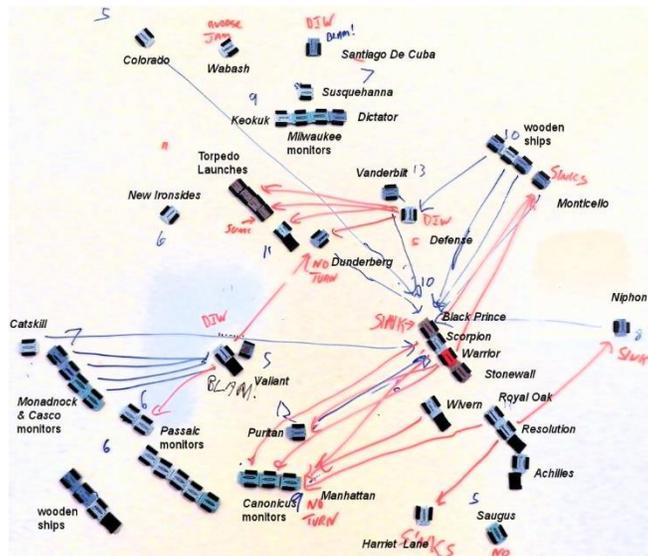
*Vanderbilt* fires her stern 100 pdr at *Defense*, at pistol range, but scores surprisingly little damage. The rest of her broadside is directed against *Black Prince*. These hits contribute to her accumulating damage. Her hull damage pushes her over the line, and she sinks.

*Valiant* fires her port broadside at *Nantucket* and her starboard at *Dunderberg*. The monitor takes a few armor hits to her turret and waterline. *Dunderberg* takes no damage at all.

*Scorpion* fires its 9-inch rifles at *Manhattan*. The monitor takes some armor, hull, and floatation damage. *Wivern* fires at the same ship, from closer range. She has much better success, banging up the monitor's turret, destroying one gun, and hitting the pilothouse.

Although without steam power, *Defense*'s guns are still working. However, she has no pivot guns, and there are few targets in her broadside arcs. She fires her 110 pdr Armstrong rifles at *Dunderberg*. She gets a lucky hit on the pilothouse, stunning the bridge crew for three turns. Knowing that her lighter guns will have no effect on the ironclad, she spreads them out against the torpedo launches. They're hard to hit, but one 68 pdr shell finds *Scorpion*<sup>4</sup>, blowing it out of the water.

*Resistance*, sister ship to *Defense*, also has no pivot guns. She fires her starboard broadside at *Harriet Lane* and the port broadside at *Nippon*. The already damaged *Harriet Lane* is overwhelmed by the short-range bombardment and sinks. *Nippon*, too, is unable to withstand the additional damage and slips beneath the waves.



Turn 7

*Royal Oak* is not in a good position for finding targets. She fires her stern starboard 110 pdr Armstrongs at *Manhattan*. She causes additional damage to the monitor's turret.

*Warrior* splits her fire. She fires her stern port guns at *Monticello*, her stern port guns at *Puritan*, and the rest of her port broadside at *Tecumseh*. *Monticello* takes one hit from a 70 pdr Armstrong and loses most of her port midship protection. *Puritan* takes five hits from 110 pdr Blakely rifles and shrugs them off. *Tecumseh* sees 68 pdrs splashing all around it. A few hit but do no damage.

*Black Prince* fires her port broadside and *Monticello* and her starboard at *Canonicus*. The range to *Monticello* is a bit long for 68 pdrs, but the rifles all hit her midship and do enough floatation

<sup>4</sup> American torpedo launch, not the British turret ship.

damage to sink her. The rifles bang up *Tecumseh*'s turret armor a bit, while the smoothbores do nothing.

*Stonewall* fires her 70 pdr Armstrong rifles at *Mount Vernon* and her 300 pdr Armstrong at *Puritan*. *Mount Vernon* takes some hull and floatation damage. However, even the 300 pdr has no effect on *Puritan*'s turret.

While trying to restart her engines, *Santiago De Cuba* suffers a boiler explosion. She is now dead in the water permanently.

### Turn 8

The British decide that there is nothing more to be gained by continuing the battle. They start to withdraw to the east, moving slowly in order to allow the damaged ships to move into line. *Achilles*, less maneuverable at speed, falls out of formation. The American columns converge on the British as best they can, although many cannot match the enemy's speed.

The only gun that *Achilles* can bring to bear on a target is her stern starboard 110 pdr Armstrong rifle, which she fires at *Puritan*. It bounces off the turret armor.

*Valiant* has allocated most of her crew to fighting the fire, but she fires two of her 7-inch RMLs at *Casco* and another at *Weehawken*. Only one shot hits, damaging *Casco*'s turret armor.

*Scorpion* and *Wivern* are reloading.

*Defense* fires her starboard broadside at *Winnebago* at very short range. Her 110 pdr rifles cause serious damage to the Z turret, jamming it. Her other weapons either miss or cause no damage.

*Resistance* fires a broadside at *Dictator*. However, the monitor's heavy armor defeats all damage. *Royal Oak*'s rifles do some minor armor damage.

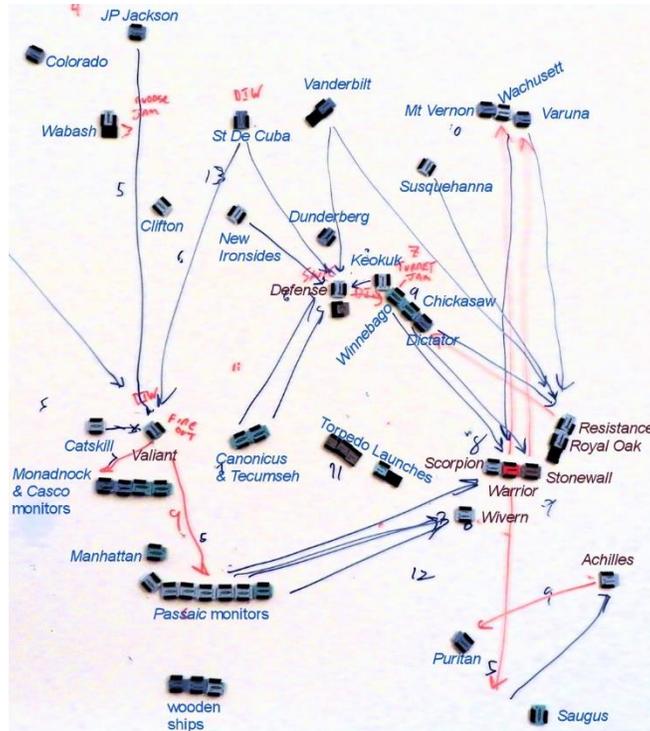
*Warrior* fires her port at *Wachusett*, despite the fact that she is out of 68 pdr range. One of her 110 pdrs scores an engine hit, reducing the target's speed. She fires her starboard guns at *Saugus*, which takes some armor damage.

*Stonewall* is reloading her 300 pdr, but she fires her 70 pdr Armstrong rifles at *Varuna*. They cause only minor damage.

*Weehawken* fires at *Scorpion*, doing no damage to her Z turret.

*Catskill* is reloading her 11-incher, but she fires her 15 at *Valiant*. She hits a relatively undamaged section of armor but still does hull damage that pushes the target even closer to sinking. *J.P. Jackson* fires her 6-inch Sawyer rifle at long range and causes minor armor damage. *Pensacola*, firing at extreme range, gets a hit with her 100 pdr Parrott rifle, but it does no damage.

*Nantucket*. *Nahant* and *Montauk* hold their fire for lack of good targets.



Turn 8

*Passaic*, *Patapsco*, and *Lehigh* fire at *Wivern*, damaging her armor a bit. *Mississippi*, *Somerset*, and *Saranac* fire their forward pivot guns at *Wivern* but fail to damage her Z turret.

*New Ironsides* unloads a full broadside against *Defense*. Her port armor is battered all over, and she takes additional hull damage. *Canonius* and *Tecumseh* also fire at *Defense*. Firing shell, their 15-inch Dahlgrens eliminate her portside midship armor, destroy a 68 pdr, and start a level I fire. The strange little casemate monitor *Keokuk* finally gets a chance to fire, causing more hull damage and destroying a 110 pdr.

*Wachusett* fires at *Warrior*, battering her armor and destroying one of her 68 pdrs. *Winnebago* hits her with 11-inch Dahlgrens, scoring additional armor and hull damage. A broadside from *Mount Vernon* adds a little more armor damage.

*Saugus* fires at *Achilles*. She takes hull damage but manages to avoid a fire.

*Manhattan* is not in a position to fire at anything.

*Onondaga*, *Monadnock*, *Casco*, and *Tunxis* steam very close to *Valiant* but are busy reloading.

*Susquehanna* fires her aft 100 pdr at *Resistance*, causing minor armor damage. *Dictator*'s 15-inch Dahlgrens have better luck, inflicting three speed hits. *Varuna* fires a broadside, doing minor damage.

*Chickasaw* fires her 11-inch Dahlgrens at *Stonewall*. She takes some armor damage.

*Vanderbilt* fires her stern 100 pdr at *Defense* and the rest of her broadside at *Resistance*. The hit on *Defense* is sufficient to finish her off. The hits on *Resistance* contribute to her cumulative damage.

*Santiago De Cuba* fires one of her stern 20 pdr Parrot rifles at *Defense* and the other at *Valiant*. *Defense* is already sinking, so who cares? The shot at *Valiant* misses.

*Dunderberg* and *Puritan* are both reloading.

*Valiant* manages to extinguish her fire.

### Turn 9

The British continue to withdraw to the northeast, hampered by trying to keep the line together. *Achilles* is trying to reunite with the main body, while *Wivern* just can't keep up. The American torpedo launches try for another attack. Two of them, *Hornet* and *Wasp*, make contact with *Wivern*. A group of fast, if foolhardy, American wooden ships crosses the British T at what they hope is a safe range. One group of monitors (*Dictator*, *Chickasaw*, *Winnebago*, and *Keokuk*) is fast enough to overhaul the British. The others are falling behind in the chase. The slow-moving, damaged wooden ships are trying to get into position to finish off *Valiant*, without getting finished off themselves.

*Wachusett* fires a broadside at *Stonewall* and scores some minor damage.

The torpedo launches fire their 12 pounders at *Wivern* and actually cause a little damage.

*Tecumseh*, *Canonicus*, and *Saugus* are all reloading. However, *Manhattan* fires her one remaining gun at *Valiant*. She hits a relatively intact section of armor and does a small amount of damage. *Dunderberg's* line of fire is mostly blocked, but she fires her rear 11-inch Dahlgrens at *Valiant*. They are loaded with shell and do little damage at long range. *Pensacola* fires from very long range and misses. *Santiago De Cuba* scores a hit on *Valiant* with her 30 pdr Parrot, adding a bit to her damage.

*Colorado* *J.P. Jackson*, and *Wabash* have no targets in their firing arcs.

*Onondaga* fires at *Scorpion*, but the range is too long, and all her shots miss. *Tunxis* hits with her 150 pdr Parrot rifle and does a little damage. *Casco* misses.

*Monadnock* fires her forward turret at *Wivern*. She scores a hit with her 150 pdr Parrot rifle, causing a bit of damage. *Mississippi* bounces shot from her 10 inch Dahlgren off the Z turret. *Saranac's* 20 pdr Parrot fails to damage her. *Somerset's* 9 inch Dahlgren misses entirely.

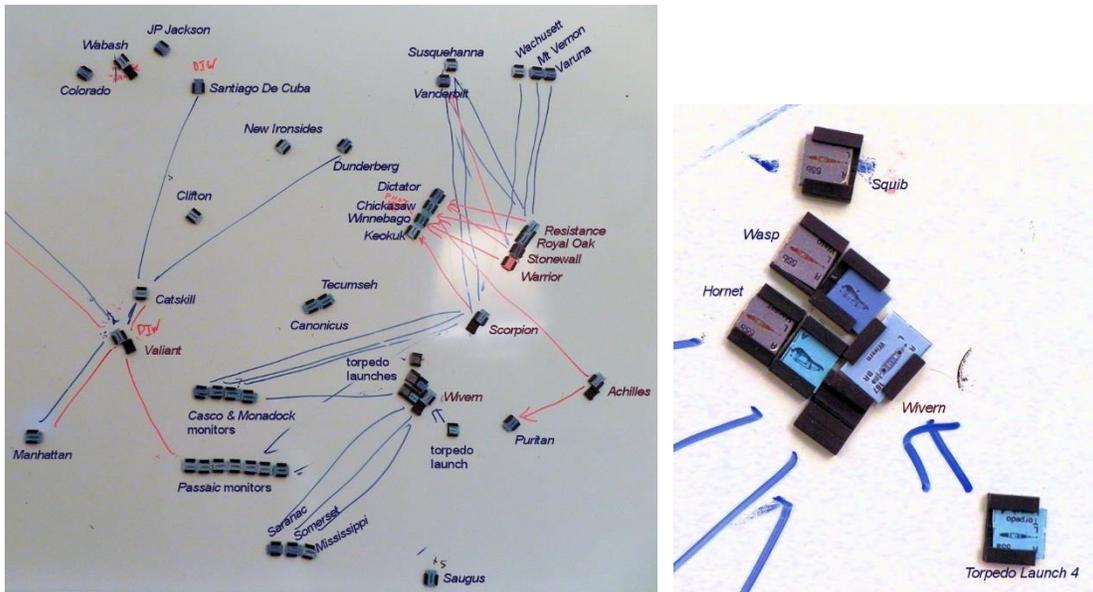
*Susquehanna* fires her bow 100 pdr Parrot at *Resistance* and the rest of her broadside at *Scorpion*. *Resistance* takes some minor damage. The longer-range fire at the more heavily armored *Scorpion* mostly miss, and the hits do no damage. *Vanderbilt* fires in the same way, having the same result on *Resistance* but also inflicting a little damage on *Scorpion*. Her cumulative damage has now reduced her speed to just 1.

*Dictator*, *Chickasaw*, *Winnebago*, and *Keokuk* are reloading.

*Puritan* is still reloading.

*Varuna* and *Mount Vernon* fire broadsides at *Resistance*. They inflict a considerable amount of hull and floatation damage, repeatedly hitting her unprotected bow waterline.

Despite the pounding she has taken, *Valiant* is still firing. There are no targets for her 68 pdrs, but she fires one 7-inch rifle at each of *Catskill*, *Manhattan*, *Nahant*, and *Pensacola*. *Catskill* and *Nahant* take a little armor damage.



Turn 9

*Scorpion* trains her 9 inch rifles on *Keokuk*. The lightly-armored monitor takes considerable damage to her Z casemate, floatation, and crew. She takes a speed hit from flooding.

*Wivern* is forced to use her turrets to defend against the torpedo launches. She blows *Hornet* to bits but misses *Wasp*! Everyone holds their breath as the torpedo rams into the ship's side. It's a dud! *Wasp* crashes into the ship and sinks.

*Resistance* has no forward-pointing guns and cannot return fire against the wooden ships ahead of her. All she can do is fire her stern 40 pdr Armstrong rifles at *Dictator*. They fail to hurt the monitor's armor.

*Royal Oak*'s fires her broadside at *Chickasaw*, scoring 4 hits with her 110 pdrs and 8 with her 68 pdrs. None of these have the penetration power to cause serious damage, but the armor gets banged up, and some lucky hits damage the monitor's floatation.

*Warrior* fires her broadside at *Winnebago*. It's the same story of multiple hits from weapons that are too light. However, a lucky hit on the pilot house means that yet another American ironclad is out of control for a few turns.

*Stonewall* fires her 300 pdr at *Dictator* and her 70 pdrs at *Vanderbilt*. *Dictator* takes some damage to her turret armor. The wooden *Vanderbilt* loses her starboard wheelhouse, leaving her unmaneuverable.

*Achilles* fires her stern 110 pdr Blakely rifle at *Puritan* and the rest of her broadside at *Chickasaw*. *Puritan* takes a little armor damage. At this long range, none of the British smoothbores hit *Chickasaw*, but she does take some damage to her A turret from the forward 110 pdr.

#### Turn 10

The British continue to set the terms of the battle. The main column, now down to four ships, turns due east in order to put the wooden ships in their broadsides. They are moving at speed 8, so as not to leave *Scorpion* behind. *Wivern*, at speed 6, drops further behind. *Resistance* is rapidly losing headway from her accumulated damage, but she is shielded by the main line for this turn, anyway. *Achilles* steams north at speed 11 in order to catch up.

The American wooden ships to the north try to keep the range open while still staying in a position to fire most of their guns. The fast monitors, now just *Dictator* and *Chickasaw*, circle to the north of the British. *Puritan*, moving from the south, chases after *Achilles*. The two remaining torpedo launches move away to the east, trying to find another chance to attack. The slower American monitors lag behind, hoping to catch a straggler. The damaged wooden ships seek to finish off *Valiant*.

*Valiant* fires one 7-inch rifle at each of *Manhattan*, *Clifton*, and *Catskill*. A lucky hit disables *Catskill's* 15-inch Dahlgren. Despite the short range, she misses *Clifton* and *Manhattan*.

*Wivern* and *Scorpion* are reloading.

*Resistance's* sheltered position also leaves her with no targets.

*Royal Oak* gets the chance for the kind of attack she was designed for, firing a broadside at *Varuna*. She inflicts 15 hits. *Varuna* suffers serious hull and flotation damage, and also loses her forward 30 pdr Parrot rifle. Her cumulative damage reduces her speed to 4.

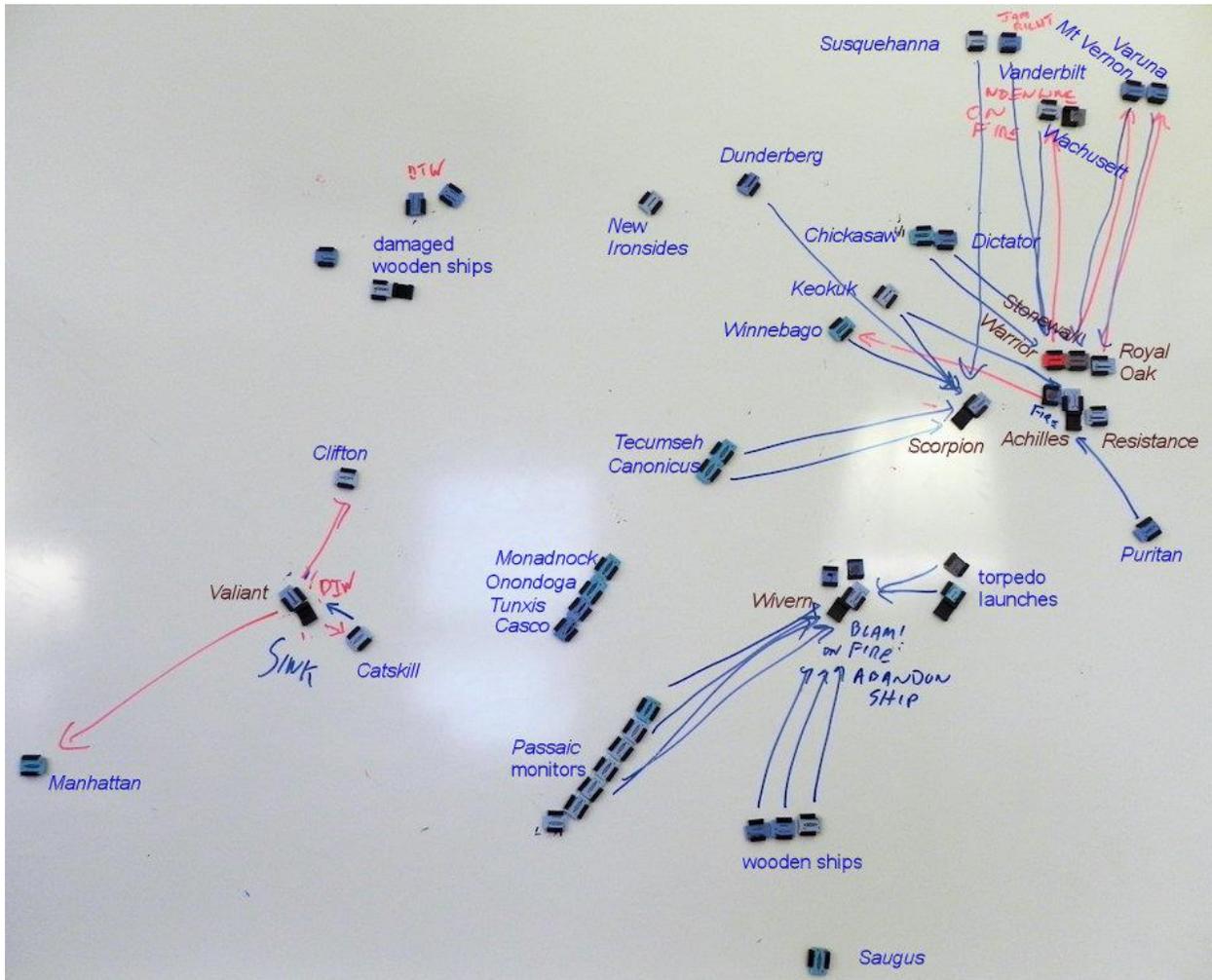
*Warrior* gives the same treatment to *Wachusett*, inflicting a total of 12 hits. *Wachusett* is left without engine power, 6 speed hits, and on fire. Her cumulative damage is such that she is permanently dead in the water.

*Stonewall* is reloading her 300 pdr, but she fires her 70 pdrs at *Mount Vernon*, inflicting some armor and hull damage.

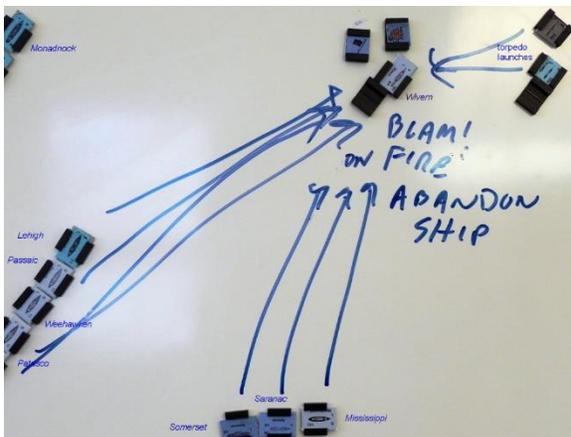
*Varuna* fires a broadside at *Royal Oak*. She causes some armor and flotation damage.

*Mount Vernon* fires a broadside at *Stonewall*. She causes a little armor and hull damage. *Dictator* has more success, although only one of her 15-inch Dahlgrens hits. Than one punches a big hole at the waterline, causing flotation damage and two speed hits. *Stonewall's* cumulative

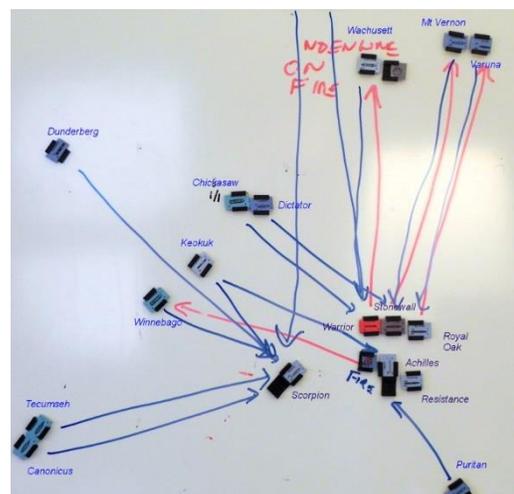
damage is such that her maximum speed drops to 4. She has suffered so many casualties that she can man only two of her three guns.



Turn 10 Overview



Turn 10 Detail



*Achilles* fires a broadside at *Winnebago*. Her 110 pdr Blakely rifles do a little armor damage, but her shell-loaded smoothbores prove harmless.

*Catskill*'s 15- and 11-inch guns finally put an end to *Valiant*.

*Nantucket* and *Nahant* have no targets.

The torpedo launches, *Mississippi*, *Somerset*, *Saranac*, *Patapsco*, *Montauk*, *Passaic*, and *Lehigh* fire at *Wivern*. The launches' 12 pdrs actually do a bit of armor damage. *Mississippi*'s 8-inch Dahlgrens cause some armor and hull damage. *Somerset* and *Saranac* can bring only their bow guns to bear and do some minor armor damage. *Patapsco*'s 11-inch Dahlgren scores a magazine hit, causing heavy damage and a level III fire. *Montauk* shoots badly and fails to do any damage. *Passaic* does additional hull damage. *Lehigh*'s 150 pdr Parrot hits the engine, reducing the target's speed to 5. *Wivern*'s cumulative damage has reduced her speed to 2. Worse still, her casualties are such that she has no hope of extinguishing the fire. She strikes her colors, and her crew abandons ship.

*New Ironsides* has no targets.

*Wachusett* fires at *Warrior*. She inflicts additional armor and hull damage. *Chickasaw* damages *Warrior*'s steering, reducing her turning ability to 1/1 at all speeds. She also suffers flotation and hull damage. *Vanderbilt* also fires a broadside at *Warrior*, adding a bit of additional damage. *Warrior*'s cumulative damage has reduced her maximum speed from 12 to 10.

*Dunderberg*, *Winnebago*, *Susquehanna*, *Tecumseh*, and *Canonicus* fire at *Scorpion*. She takes considerable hull damage. Her cumulative damage reduces her speed to 5. Her casualties allow her to man only 3 of her 4 guns.

*Saugus* and *Manhattan* have no targets.

*Colorado*, *Wabash*, *Santiago De Cuba*, *Pensacola*, and *J.P. Jackson* have no targets.

*Onondaga*, *Monadnock*, *Casco*, and *Tunxis* are reloading.

*Keokuk* fires her forward 11-inch Dahlgren at *Achilles* and her aft at *Scorpion*. Both targets suffer some armor and hull damage.

*Puritan* pumps two 20-inch shells into *Achilles*' heel. The result is a lot of hull damage and a level II fire.

Far behind the fight, *Pensacola* manages to restart her engine.

## Turn 11

The damaged and slow American ships that are well behind the fight break off action and head for home. The British ships make for the northeast, will all ships making the best speed they can. The remains of the American wooden ships on the north side try to keep the range open, while the damaged ones do the best they can. The two remaining torpedo launches catch up with

the slow-moving *Scorpion*. The slower moving American ironclads continue to chase, hoping to catch up with the British cripples.

*Varuna* fires her aft 30 pdr Parrot rifle at *Royal Oak* and her broadside 8 inch Dahlgrens at *Scorpion*. None of it does any good.

The torpedo launches pop away at *Scorpion*, without effect. *Saugus* also fires at *Scorpion*, but the range is too long for her 15 inch Dahlgrens. *Onondaga*, *Monadnock*, *Casco*, and *Tunxis* struggle to hit *Scorpion* at long range. Their 150 pdr Parrot rifles do a bit of damage.

*Tecumseh* and *Canonicus* are reloading.

*Mississippi* fires her bow 10 inch Dahlgren at *Resistance* and inflicts some minor armor damage. *Nantucket* and *Nahant* miss entirely.

*Somerset* and *Saranac* have no targets.

*Susquehanna* fires a broadside at *Achilles*. The large, burning target is easy to hit, but her armor keeps her from taking any serious damage.

*Dictator*, *Chickasaw*, *Winnebago*, and *Keokuk* are reloading.

*Vanderbilt* fires her bow 100 pdr at *Royal Oak* but causes no damage. *Mount Vernon* adds her broadside, but causes only minor armor damage.

*Dunderberg* has no targets.

*Puritan* is reloading.

*Weehawken* fires at *Scorpion*. She scores one hit, but it penetrates in a section completely devoid of armor. It does enough damage to sink the ship and kill the remaining crew.

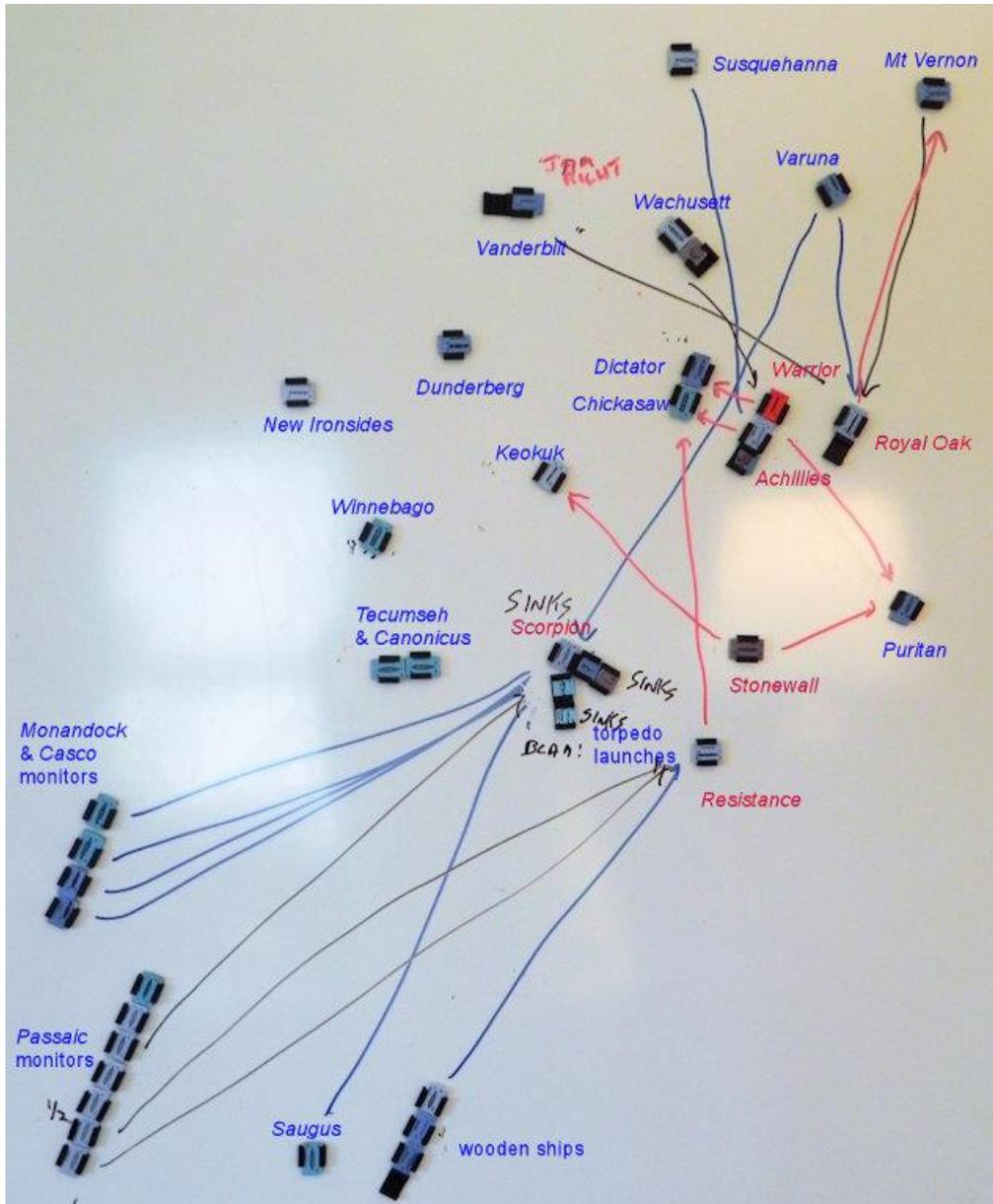
*Patapsco*, *Lehigh*, and *Montauk* are reloading.

*New Ironsides* has no targets.

*Wachusett* fires her stern 100 pdr at *Warrior*, causing a small amount of damage.

*Warrior* fires her port broadside at *Dictator* and her stern starboard guns at *Puritan*. She scores 17 hits on *Dictator*, but, even at a range of 2, her 68 pdrs are incapable of hurting the monitor's armor, and her 110 pdrs are barely able to. *Dictator*'s turret takes some minor armor damage. Similarly, *Warrior*'s 70 pdr Armstrong rifles cause no damage to *Puritan*.

*Resistance* fires a broadside at *Chickasaw*. She takes small amounts of damage to her armor, hull, crew, and flotation. Despite being ablaze, *Achilles* fires her port broadside at *Chickasaw*. Not being as well armored as *Dictator*, she takes an all-around battering from the short-ranged fire. Her cumulative damage slows her to speed 5.

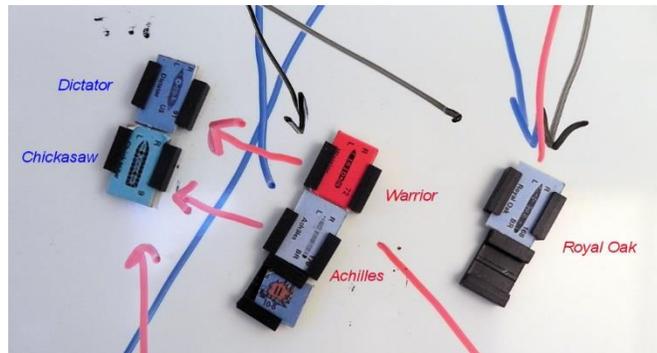
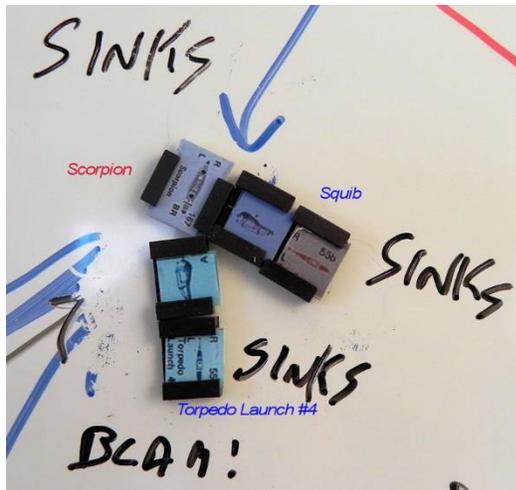


Turn 11 Overview

*Stonewall* fires her 300 pdr at *Puritan* but misses. Due to casualties, she has only one of her 70 pdrs manned, and she fires it at *Keokuk*. It hits her Z casemate but does no damage.

*Scorpion*, too, has casualties. She fires her two Z turret guns at *Torpedo Launch #4* and her one operating A turret gun at *Squib*. *Squib* is blown to splinters, but *Torpedo Launch #4* ducks the shot.

*Royal Oak* is in a poor position for her casemate weapons. However, she fires her bow port 110 pdr Armstrong rifle at *Mount Vernon*. The wooden ship takes a small amount of damage.



Turn 11 Detail

*Torpedo Launch #4's* spar torpedo goes off with a satisfying roar, giving *Scorpion* 8 points of flotation damage. Alas, as was noted above, the ironclad was already sinking. Alas, the brave little launch is lost in the explosion.

*Wachusett* manages to extinguish her fire.

## Turn 12

The British continue to move northeast at whatever speed they can. The relatively undamaged ships are steadily pulling away from their American pursuers.

*Royal Oak* fires a broadside at *Varuna*. The already-damaged ship takes extensive damage and sinks.

*Warrior* fires a broadside at *Susquehanna*. The hitherto-undamaged ship is battered to pieces and put into a sinking state by 18 close-range hits.

*Resistance* fires at a broadside at *Canonicus*, causing some minor damage.

*Achilles* fires a broadside at *Dictator*. Even at point-blank range, her guns are not powerful enough to hurt the monitor. However, one very lucky hit from her 110 pdr Armstrong rifle gives the target a considerable amount of flotation damage and speed loss, reducing her maximum speed to 5.

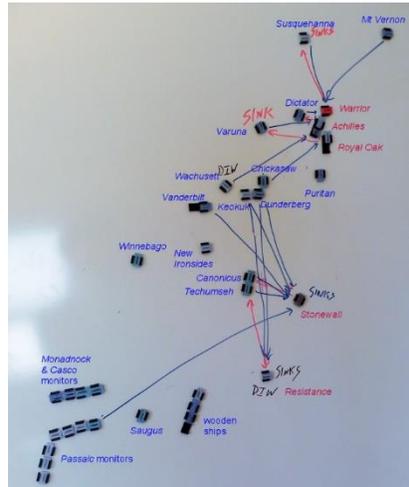
*Stonewall* is reloading her 300 pdr. She fires her 70 pdr at *Canonicus*, but it misses.

*Chickasaw* fires at *Royal Oak*. She takes some armor damage and loses a 10-inch smoothbore.

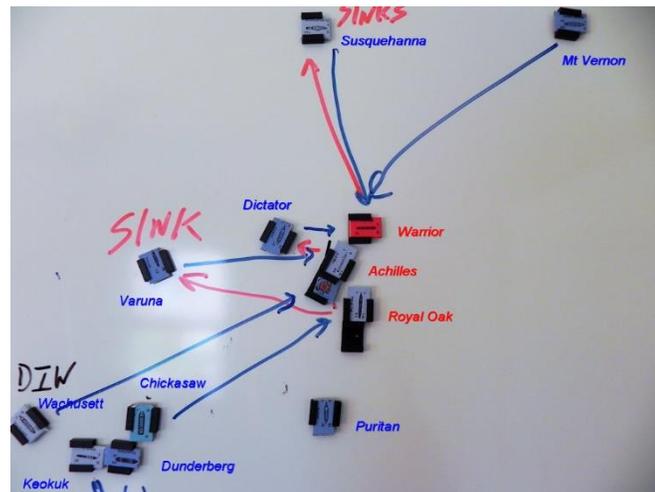
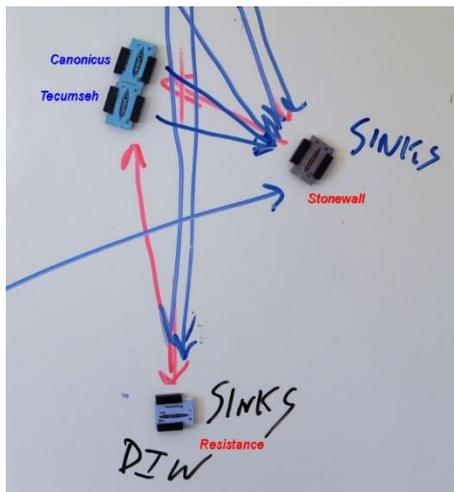
*Winnebago* has no targets.

*Keokuk* fires her forward 11-inch Dahlgren at *Stonewall* and her aft gun at *Resistance*. *Stonewall* takes a stack hit. *Resistance* takes some armor and hull damage.

*Vanderbilt* fires her aft 100 pdr Parrot rifle at *Stonewall*, but it misses.



Turn 12 Overview



Turn 12 Detail

*Dunderberg* fires her bow 11-inch Dahlgrens at *Stonewall* and the rest of her broadside at *Resistance*. She misses *Stonewall* with both shots. *Resistance* takes an engine hit, stopping her steam power. She also takes additional flotation damage.

*Puritan* is reloading.

*Mount Vernon* fires her stern 30 pdr at *Warrior*, causing some minor armor damage.

Most of the *Passaic* class monitors are either reloading or masked by friendly ships in their line of fire. *Lehigh* hits *Stonewall* with her 150 pdr Parrot rifle, causing a small amount of damage.

*New Ironsides* has no targets.

*Wachusett* and *Varuna* fire broadsides at *Achilles*, causing armor and hull damage, plus a lucky penetration hit that reduces her speed by two.

*Tecumseh* and *Canonicus* fire at *Stonewall*, scoring four close-range hits with 15-inch Dahlgrens. By the time they finish, the ship is sinking, and the crew is dead.

*Saugus*, *Onondaga*, *Monadnock*, *Casco*, and *Tunxis* are reloading.

*Mississippi*, *Saranac*, and *Somerset* fire their forward pivot guns at *Resistance*. She suffers additional hull damage. Her cumulative damage is sufficient to sink her.

*Susquehanna* fires a broadside at *Warrior*. She takes considerable armor, hull, and flotation damage; she also has steering damage that prevents her from turning for the next four turns. *Dictator* also trains her 15-inch Dahlgrens at *Warrior*, at point-blank range. She takes more hull damage and loses both of her portside 70 pdrs. Her cumulative damage has slowed her maximum speed to 7.

*Achilles* extinguishes her fire.

### Turn 13

*Royal Oak* increases speed to 12, trying to disengage while she can. She is closely pursued by *Puritan*, the only American ship that can still make that speed. *Warrior* and *Achilles* limp away at the best speed they can. Most of the American fleet is well behind them, but some now have the opportunity to catch up. *Dunderberg*, recovered from its pilot house hit, is now making good speed. Off to the east the speedy but lightly-armed *Mount Vernon* is trying to avoid the fate of the other wooden ships.

*Chickasaw* is reloading. *Winnebago* has no targets. *Keokuk* is reloading.

*Vanderbilt* fires her stern 100 pdr Parrot rifle at *Achilles*. She hits her target in the now-unarmored stern. She takes hull damage, but it could have been much worse. *Dunderberg* fires a broadside at *Achilles* from close range. She takes quite a battering and loses another 10-inch smoothbore, but she avoids any catastrophic damage. The only *Passaic* class monitor that has a target is *Lehigh*, which fires her 150 pdr Parrot rifle at *Achilles*. The long-range hit does no damage. *Wachusett* fires her stern 110 pdr Parrot rifle and causes a small amount of hull damage. *Tunxis*, *Casco*, *Onondaga*, and *Monadnock* fire their 150 pdr Parrots, and one of the hits reduces her speed by 1.

*Mississippi*, *Somerset*, and *Saranac* have no targets.

*Dictator* is reloading.

*Tecumseh* and *Canonicus* are reloading. *Saugus* has no target.

*New Ironsides* has no target.

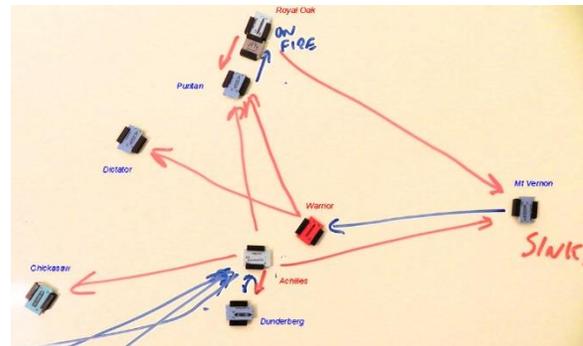
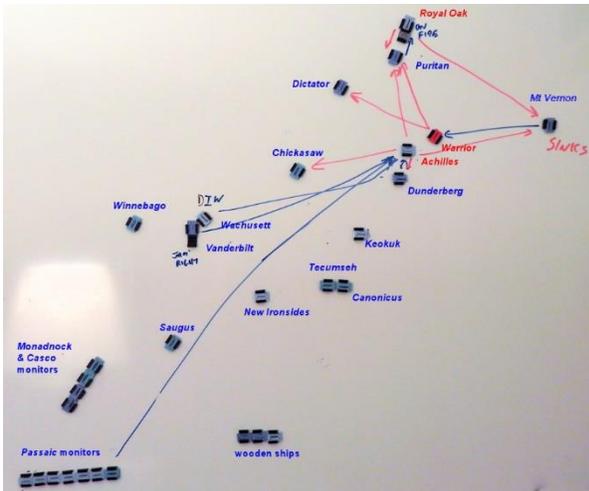
*Puritan* fires two 20-in smoothbore shells into *Royal Oak*. She takes quite a battering and breaks out in fire, but her steaming ability is unimpaired.

*Mount Vernon* fires a broadside at *Warrior*. It's a bow rake, but on her relatively undamaged starboard side. Even so, she loses two of her 110 pdr Blakely rifles.

*Warrior* fires her 110 pdr Blakely rifles at *Puritan*, which takes a little turret damage. She fires her 68 pdrs at *Dictator*. She scores six hits, but none do any damage.

*Achilles* fires her forward 110 pdrs at *Mount Vernon*, her stern 110 pdrs at *Chickasaw*, her starboard broadside at *Dunderberg*, and her port broadside at *Puritan*. *Mount Vernon* takes some serious hull and flotation damage. *Chickasaw* takes some damage to her Z turret armor. *Dunderberg* takes a little armor damage. *Puritan* is undamaged.

*Royal Oak* fires her stern 110 pdr at *Puritan* and her starboard broadside at *Mount Vernon*. *Puritan* takes a small amount of damage to her turret armor. *Mount Vernon* is battered to pieces and sinks.



Turn 13

### Turn 14

*Royal Oak* disengages to the open sea. *Warrior* and *Achilles* are still struggling. Most of their pursuers are also slowed, although *Dunderberg* is moving at speed and *Winnebago* has recovered from her pilothouse hit.

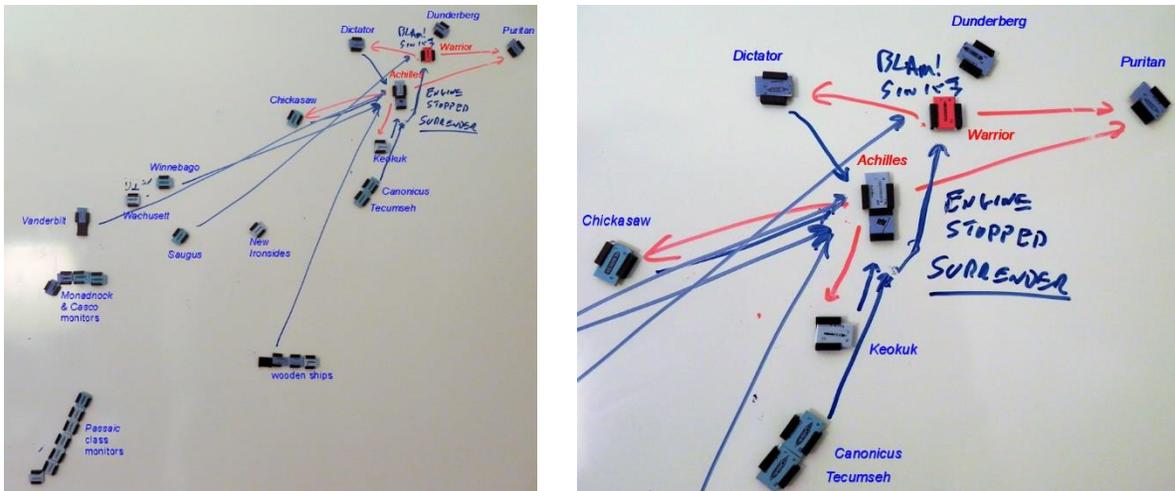
Although it isn't likely to hurt such heavily-armored opponents, *Warrior* fires her starboard broadside at *Puritan* and her port broadside at *Dictator*. *Puritan* takes a little armor damage, while *Dictator* takes none at all.

*Achilles* fires her port broadside at *Chickasaw*, except for her stern 110 pdr, which she fires at *Keokuk*. She also fires her bow starboard 110 pdr at *Puritan*. The first two take some armor damage, while *Puritan* is unscathed. *Somerset* scores a couple long-range hit with her 9-inch smoothbores, which do some armor and hull damage. *Dictator* adds to her hull damage and destroys her port bow 110 pdr.

*Vanderbilt* has no targets. *Dunderberg* has cleverly maneuvered herself so that her unloaded port broadside is facing the enemy. *Puritan* is reloading. The *Passaic* class monitors are either reloading or have no targets. *New Ironsides* has no targets. *Tecumseh* has no targets. *Onondaga*, *Monadnock*, *Casco*, and *Tunxis* are all reloading their long-range weapons. *Mississippi* and *Saranac* have no targets.

*Canonicus* fires at *Warrior*, causing serious hull and flotation damage. *Saugus* causes her boiler to explode, which, among other consequences, gives her enough damage to sink her.

*Chickasaw* returns fire at *Achilles*, which suffers additional hull and armor damage, plus the loss of a 10-inch smoothbore. *Winnebago* fires her A turret guns at *Achilles* from long range, causing hull and armor damage. *Keokuk* inflicts additional armor, hull, and flotation damage. *Wachusett* gets a lucky hit with her stern 100 pdr that stops *Achilles*' engine. With most of her crew dead and alone among the enemy fleet, she strikes her colors and surrenders.



Turn 14

### The Reckoning

It's pretty clear that the American side won the battle. All but one of the 12 British ships were sunk, and the one that escaped had substantial damage. The Americans did suffer: 7 ships sunk, 4 with more than 50 per cent hull damage, and 18 with lesser amounts of hull damage, plus all 7 torpedo launches lost. Some additional ships had armor damage but no hull damage. Using the game's point system and counting damaged ships in proportion to hull damage, the British suffered the loss of 33,902 points, to the American 17,457.

The big surprise was how ineffective the British armored frigates were against the American ironclads. The British ships have large batteries of guns, including heavy rifles and lighter smoothbores. It turned out that those big broadsides of 68 pounder and 10 inch smoothbores were incapable of hurting American armor, even at very close range. Even the 110 pounder rifles had little effect on the very heavy American ships, such as *Dunderberg*, *Dictator*, or

*Puritan*. Another contributing factor was the low silhouette modifiers<sup>5</sup> of the American monitors, making them harder to hit in the first place.

By contrast, the British ships, while well armored, were still vulnerable to damage from American rifles and heavy smoothbores, even at moderate ranges. This was exacerbated by their positive silhouette modifiers, making them easier to hit even at longer ranges. While the superior British speed allowed them to control the battle, they had no good options. If they closed the range they could inflict some damage on the enemy ironclads, but it meant taking heavy hits in exchange and accepting that the Americans were going to run in the direction of the rest of their fleet. If they stood off to keep the slower ships at bay, they were even less likely to cause any damage at all. As soon as the British worked out that there was no way to win, they started to pull away, but they couldn't shake off their pursuers.

### Operational and Strategic Considerations

This was a made-up scenario for the purpose of seeing big ironclad ships blasting away at each other. There are some good reasons why it never happened, and also why it wouldn't have happened this way in particular. The British Empire never intervened in the American Civil War. There have been books written on this subject. I'm not going to go into all that, but they never saw that they had a national interest in helping the Confederacy to the point of fighting on their side. If they had intervened, the most likely period would have been earlier in the war, in 1862 or 1863. By 1865, the CSA was clearly losing, and the Emancipation Proclamation had helped turn British public opinion against the rebels. Thus, this scenario, which is set in the year where all the cool ships are available, was least likely.

Operationally, it would have unlikely that a British fleet would have been confronted by such a large American fleet. The British ships were faster and had better sea-keeping ability. They would have been able to strike anywhere along the American coast with little warning. The US Navy would have had to defend many ports along the coast with smaller squadrons that could not have concentrated to meet a British threat. Thus a less-unlikely scenario would have pit the British against some subset of the American fleet.

An alternative rationale for this scenario is that it represents an American attempt to liberate Ireland, with Royal Navy on the defensive. This would explain why the American fleet would be concentrated. Many Irishmen served in the Union army in the Civil War, in part to gain combat training that they could use against the British. One song of the period said that Ireland was "in the Union in everything but name." If the British had unsuccessfully intervened on the Confederate side, the victorious Union may have decided to pay their debt to Ireland by "freeing her from her chains" and teaching the British a lesson. Of course getting those monitors across the Atlantic in good order would have been no mean feat.

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<sup>5</sup> The silhouette modifier changes the to-hit die roll to account for the size of the target. Low-lying monitors have negative modifiers, typically subtracting two from the to-hit roll. The British ships have modifiers ranging from zero to plus four, making them easier to hit.

## Ship Evaluations

Here are my impressions of the specific ships, based on their performance in the battle. Some basic points are that the British ships were faster (speeds 10-13) than the American (speeds anything from 6 to 13, but 9 being about typical). The wooden vessels were all vulnerable to damage and could disappear in a single turn. Gun arrangement was important, as casemates along the broadsides have a much more restricted field of fire than pivot guns or turrets. Another important distinction is between rifles and smoothbores. Rifles clearly have a longer range, although the heavy smoothbores have much higher penetration values, especially at short ranges.

### **British**

The heavy armored frigates all had reasonable armor and good speed. They had a few heavy rifles and large batteries of medium-weight smoothbores (68 pounders). The bulk of their weapons were in broadside casemates; some had no pivot guns, or guns that could pivot to fore- or aft-facing casemates. As large ships they have notable silhouette modifiers.

*Achilles* has a high speed, 13. It mounts a large broadside of 10-inch and 68 pounder smoothbores, plus 110 pounder Armstrong rifles in pivot casemates fore and aft. It is about the same as the other heavy armored frigates, with the same advantages and defects.

*Amethyst* was the only wooden ship on the British side. As a wooden ship, she had no business being there and didn't last very long. She is fast (12) and has a good armament of 6-inch muzzle-loaded rifles. These are useless against ironclads but effective at long range against wooden ships. All but two of these guns are in broadside casemates.

*Defense* and *Resistance* have no pivot guns. They do have a good foreship battery of 110 pdr Armstrong rifles, although their aftership battery is 40 pounder rifles. In between, they have the usual 68 pounder smoothbores. They are a little slower than typical British ships, with a maximum speed of 11.

*Hector* and *Valiant* are pretty typical heavy armored frigates. They have decent armor and good speed (12). Their large size gives them a silhouette modifier of +3. Their armament consists of four 7-inch muzzle-loading rifles that could fire forward or broadside and a large battery of 68-pounder smoothbores. Even the rifles are a bit light for dueling with monitors, but their broadsides can devastate a wooden ship.

*Royal Oak* is the British ship that survived. That may have been luck, as it was in the middle of the line for most of the battle, where it attracted less fire than the lead or trailing ships. It carries 110 pounder Armstrong rifles and a large broadside of 68 pounder smoothbores. All of its weapons are in casemates, which limited its arc of fire. A few of its forward rifles can pivot to casemates facing fore and aft.

*Scorpion* and *Wivern* are turret ships built for the Confederacy but not delivered. With a speed of 10, they are slow for the British. Their two turrets carry 9-inch muzzle-loading rifles, which have a slow rate of fire but are much more effective than most British armament. However, with only four guns, they don't have the heavy broadsides to use against wooden ships. Their hull armor is about typical for British ships, but their turrets are very heavily armored.

*Stonewall* is another ship built for the CSA but never delivered. It had quite a history after the war, but that's neither here nor there. It's not as fast as the heavy armored frigates (10), but it does have a turret. The turret is armed with rather light 70 pounder Armstrong rifles. It also carries a 300 pounder Armstrong in a bow pivot, which has a penetration value that's almost as good as the 20-inch Dahlgrens, with much greater range. The trouble is, it fires every other turn. With only three guns, this ship cannot devastate a wooden ship the way that the broadsides of the frigates can. It also has much fewer hull points, meaning that it will sink more quickly, once its armor is pierced.

*Warrior* and *Black Prince* were the Royal Navy's first armored frigates.<sup>6</sup> They are quite fast, with speed 12. Their armor is a little less than the heavy armored frigates that came a few years later. They carry five 110 pounder Blakely rifles, two 70 pounder Armstrongs, and eleven 68 pounder smoothbores on each broadside. However, they have no pivot guns.

## American

In general, American ironclads (all but two of them monitors) were heavily armored but slow, in the 6-9 range (with notable exceptions). They were mostly armed with heavy smoothbores, short range but powerful weapons. All of them could fire only every other turn (or worse), because they were slow to reload.

The *Canonicus*-class monitors (*Canonicus*, *Tecumseh*, *Saugus*, and *Manhattan*) were the ships that convinced the British to turn around. They have heavy armor and are armed with 15-inch Dahlgren smoothbores. The heavy armored frigates took damage without inflicting much while dueling with them in the early stage of the battle. Although their speed (9) isn't high enough to keep up with the British, they did well until the range opened too much. *Saugus* was out for a good part of the battle after a pilot house hit. *Manhattan* also took a pilot house hit and lost one of her guns before retiring.

*Chickasaw* and *Winnebago* are double-turret monitors with speed 9. Each carries a total of four 11-inch Dahlgrens. They have pretty good armor, but they aren't immune to short-range fire from the British rifles, as *Chickasaw* learned the hard way. An unusual feature is that they have sloping armored decks that can be hit (but not damaged) by direct fire. Most monitors' decks can be hit only by plunging fire from forts.

*Dictator* is one of the better monitors. With a speed of 9, she is not as slow as some of the American ironclads. She is heavily armored and carries two 15-inch smoothbores. She did considerable damage in some close-in gunnery exchanges with the enemy.

*Dunderberg* was never built. She is a seagoing casemate ironclad. With a speed of 11, she could keep up with most of the British ships. Her armament of 11- and 15-inch Dahlgren smoothbores, is all in casemates, although some of them can pivot fore and aft. Her armor is very heavy. While she did good work in the battle, she was out of much of the action because a pilot house hit slowed her down and prevented her from maneuvering during a critical period.

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<sup>6</sup> You can still visit *Warrior* at Portsmouth.

*New Ironsides* was the most disappointing American ship. She figures prominently in the Civil War as the USN's only armored frigate. However, in this battle, she was painfully slow, with speed 6. Not only that, but her impressive array of 11-inch Dahlgren smoothbores and a few Parrot rifles are all carried in broadside casemates, with limited fields of fire. She spent most of the battle chasing after the enemy and unable to bring her guns to bear on a target. She has heavy armor, but that hardly mattered, as she was seldom a target.

*Onondaga*, *Monadnock*, *Casco*, and *Tunxis* are not the same, but they have a lot of similarity. The first two are double-turret, and the second two are single-turret monitors. At speed 7, they are not as slow as the *Passaics*, but they are still much too slow to keep up with the British. Each of their turrets include one 11-inch Dahlgren smoothbore and one 150 pounder Parrott rifle. Thus, they have some long range capability. They spent most of the battle chasing after the British, putting in a rifle shot when they could. The double-turret monitors are very heavily armored, while the armor of the single-turret pair is a little lighter than most.

The *Passaic*-class monitors (*Passaic*, *Weehawken*, *Catskill*, *Lehigh*, *Montauk*, *Nahant*, *Nantucket*, and *Patapsco*) are very slow, with speed 6. They have good armor though, and are proof against almost anything the British can throw against them.<sup>7</sup> They gave a good accounting of themselves early in the battle, when the British were trying to close with the Americans, but once the enemy turned the other way, they fell further and further behind. Their standard armament is one 11-inch and one 15-inch Dahlgren smoothbore, which are powerful but short-ranged weapons. *Lehigh* is the exception, with a 150 pounder Parrot rifle instead of the 15-inch gun.

*Puritan* mounts 20-inch Dahlgren smoothbores, some of the heaviest guns in the battle. Unfortunately, she could fire them only once every three turns. She is as fast as all of the British ships (speed 12) and can stand up to their fire at point-blank range.

*Keokuk* is a strange craft indeed. It is a seagoing ironclad with two iron towers where turrets might be expected, each housing an 11-inch Dahlgren smoothbore. It is sometimes referred to as "casemate monitor." It has a speed of 9 and rather less armor than most monitors. Because of its lack of turrets, its field of fire is limited. It was a bit of a cheat to include her in this battle, as she was sunk in 1863.

*Colorado* and *Wabash* are screw frigates with very impressive broadsides of 21 8- and 9-inch smoothbores in casemates. With speed 8, they are a little on the slow side for American ships. However, both were disabled early in the battle and accomplished little.

*Harriet Lane* was included in the squadron with *Puritan* and *Dunderberg* because of her high speed (11). She had no business being where those ironclads sought to go, and she was sunk pretty early. Her armament is skimpy, with 20 pounder Parrot rifles and 9-inch Dahlgren smoothbores.

*J.P. Jackson*, *Clifton*, *Westfield* are all converted side wheel gunboats. They are slow (7) and mount a variety of smaller weapons, although *Westfield* at least has a 100 pounder Parrot rifle. All were badly damaged or sunk.

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<sup>7</sup> *Catskill* was damaged by *Stonewall's* 300 pounder.

*Mississippi* is one of the better side wheelers, with a broadside of 10 8-inch Dahlgrens. While not slow by American standards (9), she wasn't fast enough to keep up with the battle. She suffered no damage because she was never fired on. Most of her contribution was to help sink already crippled enemy ships.

*Mount Vernon, Niphon, and Monticello*, wooden screw steamers, were all sunk during the battle. They are fairly fast (10). Their armament varies from ship to ship, but they are all on the light side. *Niphon's* heaviest weapon is a 20 pounder Parrot rifle, while the other two at least have a single 100 pounders each.

*Pensacola* should have performed great things, but her engine was disabled by a long range hit on Turn 2, and she dropped out of the battle after that. She is one of the few American ships with a large broadside of 10 9-inch Dahlgren smoothbores on each side. In addition, she has a 100 pounder Parrot rifle in the pivot position at the stern and two smaller pivot guns forward. Her speed (7) is rather slow.

*Santiago De Cuba* is one of the fastest ships in the battle (13). However, she has very light weaponry, with her heaviest gun being a 30 pounder Parrot rifle. As a sidewheeler, she is vulnerable to losing a wheelhouse.

*Saranac*, another side wheeler, has a speed of 9, which left her chasing the action. Her armament is better than some, with one 11-inch smoothbore, two 20 pounder rifles, and a number of 8-inch smoothbores.

*Somerset* is of middling speed (9), and her armament of two 9-inch smoothbores and some 32 pounders is not impressive.

*Susquehanna* is a side wheeler steam sloop. she has a mediocre speed of 9. her armament is pretty good, with six 9-inch Dahlgren smoothbores on each broadside. In addition, she has 100 pounder Parrott rifles in fore and aft pivot mounts and an unusual 6-inch Dahlgren rifle in an aftership pivot mount. She did pretty well until she got in the way of *Warrior's* broadside, which sunk her in a single volley.

The *torpedo launches* were basically suicide boats. They have a very low silhouette modifier of -4, making them hard to hit, but that is balanced by the need to get to point blank range in order to deliver their torpedoes. A single hit by anything will sink them. Only two managed to deliver their payloads; one of those failed to explode, and the other hit a ship that was already sinking. Even a successful attack is fatal, as the blast or collision will sink these fragile craft. They are speedy for American vessels, with speed 11, but that still isn't as fast as some of the British ships.

*Vanderbilt* is a side wheeler that did rather better than one might have expected. It is quite fast, at 13, which enabled it to stay in the fight. It has a good battery of 9-inch Dahlgren smoothbores, plus 100 pounder Parrot rifle pivot guns at fore and aft. The ship was eventually disabled by the destruction of one wheelhouse, leaving it to spin in circles.

*Varuna*, a wooden gunboat. It has a good speed (10), but its armament is very light, with 30 pounder Parrot rifle as pivot guns and 6-inch Dahlgren smoothbores in casemates.

*Wachusett*, a wooden ship that whose name is hard to spell correctly. This is a pretty fast ship (10) with a powerful armament of four 100-pounder Parrot rifles, all pivot guns, and a few smaller weapons.

### Game Player Experience

This game is a lot of work to play. Each ship has its own one-page control sheet. There is a lot of die-rolling, there are a lot of charts, and you have to record a lot of information. It shows combat on a level whose granularity is excessive. If you're interested in which side wins the battle, you don't need to know the condition of a ship's armor in the portside aftership waterline section. You don't need to know the characteristics of all the myriad types of artillery that these ships mounted. Because firing is considered simultaneous, you have to distinguish between the damage a ship suffered in previous turns and that suffered in the current turn—and, given the minute details of damage, that can be difficult.

While all that is true, I have to confess that I had a lot of fun. I wouldn't want every wargame to be like this, but once in a while it's enjoyable to wallow in detail. As you resolve combat, there's a tension that builds as you step through the process: will the ship get hit in that section which was already damaged? Will that weak hit get lucky with a special or penetration hit? Will there be a critical hit? Will you get off with just extra damage, or will you get the dread magazine hit? There is a lot of texture to this game that might be abstracted out in a more elegant design.

I did some things to make the play easier. As noted above, I did not use written orders. I moved all the ships using the impulse movement chart, and I allocated firing during the combat phase. However, I did set the ships' speeds and ammunition loads at the beginning of the turn. I used dry erase markers on my whiteboard to track speeds and maneuver damage, such as jammed rudders. To speed up die-rolling, I used a programmable calculator with buttons set to give me random numbers that were the equivalent of D6 and 2D6. For record keeping, I made a template with an Excel worksheet and duplicated it for all the ships, so that each ship was a tab in the spreadsheet. I recorded the current turn's damage using a red colored font, to distinguish it from previous damage. At the end of each turn, I went through the worksheets and consolidated the damage, applying any cumulative effects. All the text was changed back to black.

I simplified some of the rules because I didn't want to deal with them. Thus, I decided that there would be no collisions or ramming. I did not use visibility or smoke rules. I considered using morale, but that rule section doesn't work well with such a large battle. One of the morale modifiers is +4 for every enemy ship sunk. With ships sinking right and left, that modifier drove every crew's morale sky-high, even when their ships were falling apart around them. Given that most ACW battles were much smaller than this scenario, it's likely that the morale bonus is calibrated for fewer sinkings.

## Appendix: Ship Lists

### American

<u>Name</u>	<u>ID</u>	<u>Description</u>	<u>Points</u>	<u>Percent Damage*</u>
<b>Canonicus</b>	10	Canonicus Class Monitor	1,184	Minor
<b>Casco</b>	94	Casco Class Monitor	928	5
<b>Catskill</b>	11	Passaic Class Monitor	640	2
<b>Chickasaw</b>	9	Milwaukee Class Monitor	993	38
<b>Clifton</b>	109	Converted Side Wheel Gunboat	884	11
<b>Colorado</b>	97	Screw Frigate	4,124	57
<b>Dictator</b>	91	Seagoing Monitor	2,324	2
<b>Dunderberg</b>	93	Casemate Ironclad	5,239	Minor
<b>Harriet Lane</b>	111	Side Wheel Gunboat	729	Sunk
<b>J P Jackson</b>	109	Converted Side Wheel Gunboat	696	43
<b>Keokuk</b>	95	Casemate Monitor	812	29
<b>Lehigh</b>	11	Passaic Class Monitor	640	2
<b>Manhattan</b>	10	Canonicus Class Monitor	1,184	33
<b>Mississippi</b>	105	Side Wheel Frigate	2,397	None
<b>Monadnock</b>	8	Monadnock Class Monitor	1,170	Minor
<b>Montauk</b>	11	Passaic Class Monitor	640	5
<b>Monticello</b>	103	4th Rate Screw Steamer	957	Sunk
<b>Mount Vernon</b>	103	4th Rate Screw Steamer	1,083	Sunk
<b>Nahant</b>	11	Passaic Class Monitor	640	Minor
<b>Nantucket</b>	11	Passaic Class Monitor	640	2
<b>New Ironsides</b>	13	Armored Frigate	1,093	3
<b>Nippon</b>	103	4th Rate Screw Steamer	852	Sunk
<b>Onondaga</b>	8	Monadnock Class Monitor	1,170	None
<b>Passaic</b>	11	Passaic Class Monitor	640	Minor
<b>Patapsco</b>	11	Passaic Class Monitor	640	Minor
<b>Pensacola</b>	96	Screw Steamer	3,199	8
<b>Puritan</b>	92	Seagoing Monitor	3,166	1
<b>Santiago De Cuba</b>	107	2nd Rate Side Wheel Cruiser	945	71
<b>Saranac</b>	108	2nd Rate Side Wheel Cruiser	1,391	None
<b>Saugus</b>	10	Canonicus Class Monitor	1,184	25
<b>Somerset</b>	112	Side Wheel Gunboat	662	None
<b>Susquehanna</b>	193	Side Wheel Steam Sloop	900	Sunk
<b>Tecumseh</b>	10	Canonicus Class Monitor	1,184	2
<b>Torpedo launches</b>	52	Torpedo launches (all 7)	224	Sunk
<b>Tunxis</b>	94	Casco Class Monitor	942	None
<b>Vanderbilt</b>	106	2nd Rate Side Wheel Cruiser	2,469	42
<b>Varuna</b>	98	Gunboat	1,165	Sunk
<b>Wabash</b>	97	Screw Frigate	4,890	69
<b>Wachusett</b>	100	3rd Class Screw Sloop	1,250	60
<b>Weehawken</b>	11	Passaic Class Monitor	640	Minor
<b>Westfield</b>	109	Converted Side Wheel Gunboat	1,009	Sunk
<b>Winnebago</b>	9	Milwaukee Class Monitor	993	10

\* Percent of hull damage. "Minor" = no hull damage, some armor or other damage.

### British

<u>Name</u>	<u>ID</u>	<u>Description</u>	<u>Points</u>	<u>Percent Damage*</u>
<b>Defense</b>	166	Heavy Armored Frigate	3,746	Sunk
<b>Warrior</b>	72	Armored Frigate	1,242	Sunk
<b>Black Prince</b>	72	Armored Frigate	1,242	Sunk
<b>Resistance</b>	166	Heavy Armored Frigate	3,746	Sunk
<b>Royal Oak</b>	168	Heavy Armored Frigate	5,862	19
<b>Hector</b>	169	Heavy Armored Frigate	3,467	Sunk
<b>Valiant</b>	169	Heavy Armored Frigate	3,467	Sunk
<b>Achilles</b>	170	Heavy Armored Frigate	4,206	Sunk
<b>Wivern</b>	167	Turret Ship	2,573	Sunk
<b>Scorpion</b>	167	Turret Ship	2,573	Sunk
<b>Stonewall</b>	71	Turret Ship	1,056	Sunk
<b>Amethyst</b>	176	Corvette	1,836	Sunk

\* Percent of hull damage. "Minor" = no hull damage, some armor or other damage.