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“A portentous spectacle”:

The Monitor U.S.S. *Miantonomoh* Visits England

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[PICTURE 1/Oscar Parkes painting (Photo# NH 59544)]

Can a single man-o'-war make a difference—in peacetime? Perhaps, if it is the right ship at the right place at the right time. A recent BBC series recreating the mid 18th-century Pacific voyages of Captain Cook, successfully demonstrated in this regard that H.M.S. *Endeavour* certainly made a difference; to the people who sent her around the world, to the people who saw her coming in off the horizon, billowing and bright, and to wider events and developments which those people could only imagine—and which historians ever since have sought to understand.^[1] One might also mention the transpolar voyage of the U.S.S. *Nautilus*, nearly 200 years after Cook; not so much a mission of exploration and oceanography but a historic display of shipboard nuclear power and potential nevertheless; a 19th century dream, or nightmare, come true.^[2] Indeed Jules Verne's Captain Nemo was well aware that his own *Nautilus* could not just tip but completely topple the surface world's 'balance of power' at sea, with predictable results. As the captive narrator of *20,000 Leagues Under the Sea* exclaimed:

Of course, everyone now knew what the supposed monster had turned out to be...a submarine, far more dangerous than a monstrous whale.

...Doubtless, everywhere at sea, this fearful engine of destruction was being pursued.

And indeed one can well imagine how frightful the *Nautilus* could be if Captain Nemo were using her as a weapon of vengeance!^[3]

But it was the *Miantonomoh*'s visit to England, in the summer of 1866, which this article will briefly address; a single man-o'-war in peacetime. The very appearance of an American monitor on this side of the Atlantic turned something like a presentiment of science fiction into reality. Few people believed such an armoured 'raft' could make the crossing. While some turret-ship advocates found this cause for celebration, many more British were disquieted with the notion that the light-draft Yankee monitors could apparently go where they pleased. Moreover, the *Miantonomoh*'s surprising and unique sense of seaworthiness, if not strategic range, was less thought-provoking than the nature of her powers of attack and defence. This was an ironclad where seemingly everything was sacrificed in favour of maximum armour protection and heavy calibre firepower.^[4] Mastless, there was little above the waterline: two feet of armoured deck and two rotating gun towers each housing a pair of fifteen-inch Dahlgren smoothbore cannon, weighing 25 tons each, firing solid-shot projectiles of 450 pounds, and all powered by steam-driven machinery. It was concentration of force gone almost too far; a rather typical display of American excess—and no small amount of ingenuity and experience. Finally, it was the very presence of such a vessel in the maritime heart of England, following the victory of the Union during the American Civil War and the bloody vindication of the English-speaking 'Republic', which seemed to magnify differences and yet suggest a likeness, Anglo-American, beyond the merely technical or strategic. Whether British statesmen or everyday citizens realised it or not—indeed, *desired* it or not—the nation was on the eve of Reform; and the mid-Victorian 'Age of Equipoise', termed by W. L. Burn, was

inexorably slipping into history along with the Antebellum South. What they did know was that England's guise as 'Mistress of the Seas' must be maintained. But how?

[PICTURE 2/Miantonomoh ship plans (from Donald Canney)]

The reason for sending a monitor across the Atlantic had its origins in the visit of a Russian squadron to New York in 1863—a gesture of strategic solidarity.^[5] Imperial Russia, still smarting from the Crimean War, and facing renewed Anglo-French opposition to its suppression of the Polish Revolt, was the only major European Power during the Civil War which expressed unconditional morale support for the Northern States. Both nations recognised a further similarity between Tsar Alexander II's freeing of the serfs in 1861 and President Abraham Lincoln's Emancipation Proclamation. When the Tsar narrowly escaped assassination on 16 April, 1866, Congress passed a joint resolution a month later which expressed a deep personal sympathy. Assistant Secretary of the Navy Gustavus Vasa Fox was chosen to personally convey the message to Russia, "in a national vessel".

For this purpose Fox without hesitation chose the *Miantonomoh*. In fact he leaped at the opportunity. Though launched at the New York Navy Yard on 15 August, 1863, the Navy-designed, wooden-hulled sister of the U.S.S. *Monadnock* was not commissioned until 18 September, 1865. This reflected the severe labour shortages during the war—followed by drastic cutbacks—as well as delays associated with the incorporation of the latest improvements in these type of ironclads, gained from experience.^[6] She measured 250 feet in length with a wide beam of 50 feet, drawing 12 feet, 8 inches at 3,815 tons.^[7] Her propulsion came from twin screws driven by a pair of horizontal back-acting engines of 1,426 total horsepower, giving her a top speed of 9 knots—nothing to boast over, but speed was not considered essential for the services expected. The same could be said for large hulls carrying greater reserves of provisions, ammunition, and most importantly, coal. Fox had witnessed the famous duel between the *Monitor* and the C.S.S. *Virginia* at Hampton Roads on 9 March, 1862, and was mesmerised by the possibilities ironclad-monitors afforded to American naval power and prestige. John Ericsson, the genius engineer responsible, he absolutely idolised. As a virtual 'Chief of Naval Operations'

during the Civil War, Fox enjoyed Lincoln's patronage and wielded enormous influence in shaping the Union's ironclad building programme—with one eye always on the menace of European, particularly British intervention. Less than two weeks after Hampton Roads Fox envisaged with Ericsson a monster twin-screw, double-turreted monitor with improved ventilation. In such a vessel he would “risk a voyage around the world and a battle with the whole iron fleet of England.”⁴⁸¹ Ericsson in turn found the energetic Departmental-advocate for his inventions he always dreamed of. “Your support in relation to the flush deck only 18 inches out of water is most encouraging,” he wrote, “and will be a tower of strength in the battle with prejudice, which must be waged, before the good cause is triumphant.”⁴⁹¹

Triumphant as the Union eventually was, however, professional scepticism on both sides of the Atlantic continued to ebb and flow for and against monitors as successful warships. Though monitors rode out many storms throughout the Civil War, it was the gale which sank the original prototype on New Year's Eve, 1862 that stuck in everyone's mind. When Ericsson's single-turret *Passaic*-class monitors proved mismatched against the network of fortifications ringing Charleston Harbor on 7 April, 1863, their naval officers initiated a stinging publicised controversy against the Lincoln administration's decision to invest in ‘machines’, even though monitor fifteen-inch guns smashed Confederate ironclads time and again. Between the periodic boastings—and threats—of the Northern press against British naval hegemony, and a Congressional inquiry which could find no evidence to censure the Navy Department, the British Admiralty dispatched Captain James G. Goodenough, R.N., as an official naval attaché to Washington. His lengthy report concluded that “altho' not one of them could be sent to sea to cruize against an enemy or for any but a special object involving not more than 48 hours absence from port, it appears to me that...[“as a defensive force”]...they would be very valuable.”⁴¹⁰¹ Now his successor, Captain John Bythesea, R.N., was to join Fox in the *Miantonomoh*. “He has so thoroughly exhausted the field of observation in naval affairs and experimental gunnery in the United States,” wrote the British Minister to the United States, Sir Frederick Bruce, to Earl Clarendon at the Foreign Office, “that independently

of the great interest attaching to the trip he is going to take, I think it desirable that Her Majesty's Government should have the opportunity of personal intercourse with him."^[11]

Meanwhile in New York, Ericsson saw his personal fame and usefulness to the restored Union gradually eclipsed by 1866. "The Civil and mechanical engineers of America nearly to a man, are my opponents at heart," Ericsson sullenly wrote to Fox in March, "you could not now find an orator or an editor of any leading paper who would mention my name in connection with the late struggle, or in connection even with the iron clad navy."^[12] Ironically enough, though he had named his original *Monitor* partially to spite "Downing Street" and "the Lords of the Admiralty", Ericsson now sought to gain acceptance of his ideas in Great Britain.^[13] John Bourne, a leading English civilian-engineer, eagerly acted on his behalf in London:

There has been great misstatement as to the sea-going properties of the monitors, and I think two parties have been interested in running them down; first, Coles's party, who hope thus to conceal their piracies, and second, the Admiralty people who have been against Coles, and who, to resist him, have been willing to deal a thrust at the turret system.

...With all its weakness and faults there is, in public opinion in England, a vast amount of honesty and a sincere desire to do and believe what is right and true; and where such a disposition exists it can never be very difficult to set it right on any topic engaging public attention...The body we have to do with is *the engineers*, and once they are set right they will soon be able to set right all the rest.^[14]

Subsequently, Ericsson began addressing Bourne's questions on the peculiarities of the low freeboard-monitor system which his critics identified, as well as sending schematics of his huge single-turret, 'ocean-going' monitor, U.S.S. *Dictator*. "The Monitor system must no longer be treated as an untried novelty," Ericsson insisted. "Upwards of 50 turret vessels have already been built by one of the shrewdest nations in the world and

whole fleets have been doing active service for more than two years of war.” Furthermore, the *Monadnock* was already en route to San Francisco via Cape Horn, a distance of 14,000 miles.^[15] Bourne’s initial interviews with the Royal Navy’s talented Chief Constructor, Edward Reed, he reported as favourable. Yet Ericsson was dubious. “To be candid I never felt any surprise at Mr. Reed’s dislike to the *Royal Sovereign*,” he replied, “but I have been amazed that one so intelligent should fail to see that he has much to fear from the Monitor system. Mr. Reed probably understands that a raking XV inch shot put through the stern of the *Royal Sovereign* would crush the gingerbread work comprising the lower part of Captain Coles [sic] four turrets and thus by a single blow cripple the whole concern.”^[16]

[PICTURE 3/Reed and Coles illustrations (ILN)]

The recourse to British public opinion, however, was a strategy Coles had also attempted, and whose “personal attacks” in the press against Reed’s own ironclad designs succeeded only in infuriating the Controller’s Department.^[17] As the First Naval Lord, Sir Frederick Grey, observed in May of 1865, Coles was frequently “weak and ill and cannot shake off the impressions that in everything ordered by the Admiralty there is some concealed desire to deprecate his invention.”^[18] The Admiralty severed its relationship with Coles on 26 January, 1866. But this in turn led to Parliament’s own sweeping inquiry on “Turret Ships” and a Special Committee which ultimately condemned neither Coles nor the Admiralty but considered it “desirable that a conclusive trial should be given to the system in a sea-going ship to be armed with *two* turrets...”^[19] Ericsson was gleeful of Coles’s own trouble with naval professionals and yet approved their decision to *seemingly* reject the idea of a high freeboard turret ship, as entirely distinct from a monitor.^[20] The British press in favour of turret ships might swing American public opinion back in his own favour, while at the same time the Royal Navy would neatly place Coles, his historic rival, “over the fire”.^[21]

To be sure, leading figures during the American Civil War were in peacetime everywhere fighting to preserve if not perpetuate their status in history. Fox too stood much to gain from the *Miantonomoh*. “I think I have rendered the state some service in the last five years, with great opposition to encounter and radical changes to make while a great war was in progress,” he wrote to Ericsson:

...yet Congress reduced my pay from \$4,000 to \$3,500 before the war closed, and I leave next month with not money enough to get home to Portsmouth, N.H. I do not complain; I am perfectly happy, and I would not exchange the victories we have won over *all* our enemies for any wealth. What aid and assistance your brain has been to us I have publicly declared upon all occasions, and I will teach them yet, in Europe, what they fail generally to comprehend, the monitor.^[22]

The mission to Russia was thus a perfect opportunity to humiliate old and unrelenting critics, everywhere. He might even secure a few contracts for U.S.-built monitors with lesser European and South American powers looking for a cheap, reliable system of modern coastal defence.^[23]

Lastly, there was another, more sweeping agenda at play. When discussing with Ericsson the completion of the *Dictator*'s sister-ship, the *Puritan*, with two *twenty-inch* calibre smoothbores firing 1,000 pound shot, Fox wrote, “I think she better go to Europe during the Paris fair in 1867—and let the people of Europe see what their Kings would be glad to conceal.”^[24] This was a common and recurring theme; nationalist propaganda. The first official naval history of the Civil War, published in 1867, spelled it out clearly enough:

...it was for no mere display of national pride or power that the Navy Department ordered the *Miantonomoh* to Europe. The purpose was to show to the people of Europe the power of free

institutions. It was to give them visible and tangible proof that the thinking force of a free republic is greater than that of a monarchy when the masses are forced down and held down....^[25]

But cooler and perhaps wiser heads in Washington had their doubts as well. Secretary of the Navy Gideon Welles wrote in his diary that “the President, I find, is by no means pleased with the steps that have been undertaken in regard to Fox’s going to Russia.” Though his Assistant Secretary was “patriotic and true”, “he fancies that by going across the Atlantic in the *Miantonomah* [sic] he shall obtain useful celebrity.” Encouraged by Secretary of State William H. Seward to display the American flag as never before, Fox, in Welles’ opinion, was reflecting a “shambling statesmanship” also seeking to intimidate the French out of Mexico.^[26] The United States of America following its civil war had too many political and social concerns of its own for its officers to wield ironclads as a means of settling international, let alone personal, scores.

[PICTURE 4/Crew of *Miantonomoh* on deck (Photo# NH 85301)]

The *Miantonomoh* steamed from New York Navy Yard to Halifax under sealed orders from the Department on the 6th of May, escorted by the wooden light-draft side-wheel steamers U.S.S. *Augusta* and *Ashuelot*.^[27] It took four days for the monitor to reach Halifax, encountering heavy weather, fog, and ice, but her commanding officer, Commander John C. Beaumont, was well-pleased with her sea-keeping abilities. Coal was the main concern. Fox noted the bunkers were designed to carry 350 tons but really stowed no more than 264. A temporary “crib” was constructed 16 inches off deck to accommodate a further 100 tons.^[28] From there the American warships headed for St. John’s on the 18th, and on the 5th of June, manoeuvring their way through icebergs, they departed for Queenstown.^[29] Ten days and eighteen hours later, the squadron arrived safely.

[PICTURE 5/Fox letter]

Not surprisingly, the monitor was towed by *Augusta* some 1,100 miles of the distance, “as a matter of convenience and precaution more than necessity,” Murray reported, “the *Miantonomoh* consuming a fair proportion of coal”:

I think she could have crossed over alone. The weather was generally very good, the only strong winds being from the westward. Heavy weather does not materially affect the speed or rolling of the monitor, for, while the others vessels were lurching about, and their progress checked by heavy seas, she went along comparatively undisturbed or unchecked.^[30]

[PICTURE 6/Fox, Murray, Beamont (Photo# NH 53392)]

Fox’s official report observed that “head to the sea, she takes over about four feet of solid water, which is broken as it sweeps along the deck, and after reaching the turret it is too much spent to prevent firing the fifteen-inch guns directly ahead.”^[31] Donald Canney, notes here, however, that the monitor was also “fitted with a 3½-foot-high wooden ‘breakwater’ forward,” usefully employed during the *Monadnock*’s voyage to San Francisco.^[32] Outward-curved rifle screens on the tops of the turrets also served to help deflect water. “Broadside to sea,” Fox continued, “...her lee guns could also be worked without difficulty...her extreme roll so moderate as not to press her lee guns near the water.”^[33] This was the unique property of a floating ‘raft’ with an extremely low metacentric height.^[34]

These glowing appraisals of the *Miantonomoh*’s seaworthiness and ability to fight in a sea-way might be expected from the American officers, but what was Captain Bythesea’s assessment?^[35] His 1871 testimony, before yet another Parliamentary Ship Design Committee, noted the weather was almost too fine to fully test the merits of the vessel, “a half gale on the port quarter, a north-westerly wind for two days, but the ship was not head to wind on any occasion” while he was aboard. Though there was “no very heavy

sea” waves were rolling “half way up the [forward] turret”, which would prohibit fire. Still, water coming onto the deck on the weather side “went off again to windward, a comparatively small portion crossing the deck”. When heavy weather was encountered, canvas screens were put over the tops of the turrets to prevent water entering through the iron gratings—but the canvas was never “washed over with water” and ultimately not needed. Hatches and combings were well-waterproof and of two-inch thick iron. Though water might get in through the turret, keyed up one-inch for rotation, it would come only through the aperture of the turret’s central spindle, eight inches in diameter itself, rather than along the whole circumference of the turret—other than two bottom hatchways for passing up more ammunition. “A couple of wedges and a couple of sledge hammers, one on each side, was sufficient to raise the turret...a very good [arrangement]; the wedges were easily knocked out, and the turret could be lowered or raised in five minutes.” The ultimate insurance was to have “excessively good pumps, and plenty of them, so that a large quantity of water could be cleared out in a short space of time.” To prevent jamming of the turret an 5 X 15-inch iron glacis was fitted around the base, a standard fitting after the Charleston assault three years earlier.^[36] Steam-power enabled a full rotation taking around a minute. The passage itself aboard the *Miantonomoh* Bythesea admitted was “quite dry”. Her ventilation “was exceedingly good”, but when the engines were stopped “the lower deck then began to get stuffy and nasty”. Still “there were three pairs of engines to supply air,” and “one pair, or even one cylinder, was sufficient to do the duty”. Through an armoured ventilating shaft on deck, “they sucked the air down, and the foul air went up the turrets.” There was also “an arrangement for distributing the air, so that any officer, when in his cabin, could turn a little rose, and have as much air as he liked, or, by closing the rose, the air was turned off.” Sickness averaged 3 percent.

[PICTURE 7/Miantonomoh log 1]

Even so, Bythesea concluded, “I think if a vessel is to go to sea, or go from port to port, in all weathers and at short notice, a higher freeboard would be better. The precautions that have to be taken on each occasion that the ‘Miantonomoh’ goes to sea are very great,

and entail a great deal of work, much of which would be obviated by having a higher freeboard.” Otherwise, he “saw no necessity for any increased height.”^[37]

[PICTURE 8/Miantonomoh log 2]

As soon as the U.S.S. *Miantonomoh* entered Queenstown, anchoring between the towering broadside-ironclads H.M.S. *Black Prince* and *Achilles*, a fresh storm of public controversy broke over England. The day before her arrival, the Admiralty had carried out an unusual and severe target practice by the Reed-designed central-battery ironclad *Bellerophon*—against the turrets of Coles’s converted “cupola ship”, the *Royal Sovereign*. Coles was recently re-instated but not all of his former influence until more doubts about turrets vs. broadsides were addressed in the most practical manner possible. The tests embarrassed everyone involved. Coles was doubted publicly by the Admiralty, which publicly doubted the increasingly popular turret principle even after its widespread application in the American Civil War. The Royal Navy seemed to be at war with itself, and the Admiralty—thanks to Coles—found itself cornered in a civil-military relations crisis with the British press. It was therefore with no small amount of irony that the same issue of the *Illustrated London News* which covered the event also depicted the presence, beyond all expectation, of an American monitor in Queenstown. Here was American naval and technological prowess—what the Royal Navy considered lunacy—in the face of apparently endless British experiments and uncertainty. Crowds were flocking to Queenstown to take a look, “greatly to the profit of the railway and steamer companies,” added the *ILN*.^[38]

[PICTURE 9/ILN full page]

[PICTURE 10/ILN full page ZOOM]

[PICTURE 11/ILN test-fire]

When the *Miantonomoh* proceeded next to Portsmouth, arriving on Saturday the 23rd of June, the attention of the nation followed her. “A strange vessel, with a strange figure and still stranger name, now lies at Spithead,” wrote the *London Times*. “She is a real genuine Monitor, a true specimen of that singular fleet on which the Americans rely for

their position on the seas.” “As these vessels resemble no other floating things,” the *Times* reasoned, “it follows almost inevitably that if the American shipbuilders are right ours must be wrong, and it is our imperative duty to investigate the subject without prejudice or delay.”^[39] Nor was it a solely a question of seaworthiness. A thorough inspection of the *Miantonomoh* left a *Times* Correspondent observing that “as a war machine for close heavy fighting she appears to be perfect.” The 15-inch Dahlgren smoothbore was itself at odds with the “best present ship gun [in the Royal Navy], the 12-ton 9-inch rifle, or 250-pounder,” while the iron gun-carriages and slides “were superior to anything of the kind previously seen in this country...Two men can run the gun in or out with ease, and one man can regulate the compressors.”^[40] *The Scientific American*, which had battled for years with the opinions of the British *Engineering* journal and *Mechanics’ Magazine* on monitors, now quoted them eating their own words.^[41] “Everywhere it is our resources, strength, inventions,” Fox wrote to Welles from London, “[the Monitor] is a wave of triumph for us all over this country...”^[42] On the 29th of June the Board of Admiralty, Coles, Bythesea and Fox travelled to Spithead for a special guided tour of the *Miantonomoh*. “There their Lordships were received by the captains and officers of the United States’ ships, under a salute from the *Auguste* [sic], which was returned by the flag-ship *Victory*, the American flag hoisted at the main.”^[43] Up on the hurricane deck between the turrets, with thousands watching from the shore, they witnessed the Dahlgrens in action:

The first gun fired was charged with a 35-powder, cartridge and a *sabot* live shell, at extreme elevation. The effect was very grand as the vast globe of metal propelled from the mouth of the gun with a deep hoarse roar went hurtling towards on its course until it fell at an estimated distance of about 3,500 yards from the ship. The second gun was charged with 35lbs. powder, a solid iron shot of 460lb., and fired point blank. If the last shot was grand, as exhibiting the flight of a 15-inch shell, this was more interesting, as exhibiting—what we have as yet made no provision for in rifling our heavy naval artillery—the perfection of *ricochet*

firing. The immense ball spun along its course over the surface of the water as truly as the cricketer's ball passes over the smooth green sward towards the wicket.^[44]

[PICTURE 12/Miantonomoh at Kiel (Photo# NH 46259)]

The 10-inch thick iron turret armour itself, curved, "laminated" break-joint layers of 1-inch plates, the *Times* described as "fixed up together in a circular wall in a manner quite equal to a rolled solid plate of moderate quality, and very superior to any rolled plate that has been but imperfectly welded. In fact the turrets of the Miantonomoh have been welded throughout their ten separate layers by mechanical means alone, and without subjecting the iron to the renewed action of the furnace and the rolling mill, to, as nearly as possible, a continuity of cohesion equal to that of the best solid or rolled armour in this country."^[45]

If the *Times* was duly impressed at first, there was also an element of cautious nit-picking. This was to be expected, since it vehemently denounced the monitors during most of the Civil War, as well as the very concept of a 'United States'.^[46] But British opinion had since changed to a large degree. Abraham Lincoln the dictator and warmonger was now the emancipator of the slaves and cruelly-assassinated martyr.^[47] The Fenians in Canada had found no sympathy from the U.S. Government. Perhaps more crucially, an angry, threatening, and anti-British Yankee press by the end of the conflict softened its tone, if only because international 'reconciliation' was more compatible with national Reconstruction than 'retaliation'. The 4th of July, 1866, thus proved a milestone in Anglo-American relations. "For the first time," the *Times* reported, "the anniversary of American independence was...celebrated conjointly by the ships-of-war of England and America in an English port," every British naval vessel in Portsmouth dressed in colours, flying the Stars and Stripes at their main-royal-mastheads, with "a national salute of 21 guns...fired from all of Her Majesty's ships carrying above 10 guns," as well as the from surrounding fortifications.^[48] When Fox announced plans in London to depart England for Cherbourg, the Prince of Wales and the Duke of Edinburgh (Prince Alfred) appealed for an opportunity to see the *Miantonomoh* as well.

Charles Francis Adams, the U.S. Ambassador at the Court of Saint James, wrote to Seward that “in consequence of this application [Fox] directed it to return to the mouth of the Thames...” This too was a first, Adams adding with a touch of complaint that Fox “devolved upon me the duty of superintending the details of the projected visit...a business with which I am little familiar.”⁴⁹¹

By the time the celebrated *Miantonomoh* quietly departed from Sheerness on the 16th of July, British public opinion was ready to launch a direct assault on the state of the Royal Navy, using the American monitor as a convenient battering ram. Within the last week a new Board of Admiralty, with Sir John Pakington as First Lord, was formed. Now was the time for the press, naval professionals led by Coles, and private shipbuilders, namely Lairds, to decisively influence Britain’s ironclad-building program. Though one old salt described the *Miantonomoh* in *Punch* as “ugliness personified”, the *Times* regarded her as “a very extraordinary and—we wish we could not feel it—a portentous spectacle.”⁵⁰¹ In Parliament it was asked why the navy now seemed to vacillate on ironclads when even land-based rival powers were apparently making every effort to produce them wholesale. If a settled design was the problem, turret ships were the obvious solution. Pakington, formerly in the Opposition, could only agree. “We have, I think, already seen enough from what has taken place in foreign nations, as well as from the experiments made by ourselves, to lead us to the conclusion that the time has arrived when experiments should cease and action commence.”⁵¹¹

[PICTURE 13/Punch article]

[PICTURE 14/Punch cartoon]

Indeed, the summer of 1866 was vibrant with change. Lord Palmerston, the stalwart icon of generations of British imperial power died the year before, along with the Liberal-Coalition Government he held together as Prime Minister in the aftermath of the Crimean War. As much as he represented a tradition of assertive foreign policy, ‘Old Pam’ was the epitome of a domestic conservatism where every man knew his place in society. In this only his detestation of human slavery was greater than his fear of democratic

republics. Now he was gone, the United States had recently passed its ultimate test, his successor, Lord John Russell, was open to an extension of the franchise, and William Gladstone announced at Manchester the previous summer he was now politically “unmuzzled”. Russell, however, failed to bring Reform through Parliament, resigning the very week the U.S.S. *Miantonomoh* was dazzling guests off Spithead and capturing headlines.^[52] At the urgent request of Queen Victoria Lord Derby did his best with a minority Conservative Government, but this inspired little confidence with working classes quickly galvanizing into a viable political force. This situation bordered on panic as the first of the great Hyde Park demonstrations—or ‘riots’—for Reform occurred on the 24th of July, with Adams writing to Seward that “the government prohibition proved utterly powerless.”^[53] As if this was not enough to rattle sensibilities at Whitehall, news came at the end of July of a great naval battle of ironclads, at Lissa, between warring Italy and Austria. Though none of the combatants were monitors (only one broadside-ironclad being sunk, by ramming), the primacy of heavy artillery in naval warfare was manifest, if only because none of the broadsides exchanged were decisive.

Perhaps even more importantly, there was a sense to the mid-Victorians that events in Europe and the rest of the world, at least as far as the navy was concerned, were passing them by. The perception was a naturally self-centred one; the Pax was theirs, as was the industrial, scientific, globalising age. Contingent for, not upon, that peace, prosperity and progress was the maintenance of British naval supremacy, at the core of which were British warships—Her Majesty’s ironclads.^[54] Thus, when the *Times* recounted Fox’s off-hand boast that “if the experiment could be made without exciting ill-feeling on either side, he would allow the whole ironclad fleet of England to open fire on the *Miantonomoh*, and continue it for two days, provided that the *Miantonomoh* might afterwards be allowed to have ten hours’ firing at our ships in return,” it reflected that however bad things may seem “something may be done—nay, it must be done, for waste of time is perilous.”^[55] If the Government seemed “utterly powerless” to control emerging social and political forces, it could at the very least be pushed by a strong, liberal middle-class contempt for bureaucratic inefficiency on matters of national—and imperial—security.^[56]

[PICTURE 15/Coles vs. Admiralty, Punch cartoon)]

If such was the crisis exemplified by the rather successful visit of the U.S.S. *Miantonomoh* to England, how did the Admiralty respond? John Bourne's greatest effort to gain acceptance for "the American System of Turret Ships" was made at the Institution of Naval Architects on 23 March, 1866—three months *before* the physical specimen of Ericsson's ideas reached Queenstown. Monitors were based on "the principle of concentration"; of armour and armament. Displacement and proportions of vessels being the same, high-freeboard broadside or low-freeboard turret, the monitor would always have the advantage in raw powers of defence and attack, Bourne argued. Reed's response was crucial. On a point of tactics, he preferred a higher freeboard to "be able to fire down on the deck" of a monitor. Habitability for the crew was perhaps a more practical consideration, "for it is still, I fancy, a question of naval officers to say whether they would like that sort of vessel for sea-going purposes...one might not like being locked up for many days together, down below there, with artificial light and artificial ventilation, and without the slightest sight of the heavens or the sea." Bourne regarded this a "sentimental affliction with which I do not pretend to deal...I should think that any seaman, or naval officer going into action, would upon it as the first condition of excellence, not that his ship had fine cabins, but that she was shot-proof and safe..."⁵⁷¹ Was the British Lion lean, hungry and ready for a fight, or sleeping comfortably?

Despite Ericsson's doubts of acceptance—perhaps recalling the famous but futile trial of his screw-driven *Francis B. Ogden* before the Lords of the Admiralty in 1837—Bourne convinced him to offer his services again in January of 1866.⁵⁸¹ Following Bourne's lecture in March, however, Ericsson graphically relished how a monitor of equal displacement to Reed's forthcoming double-turret, high-freeboard H.M.S. *Monarch* "would probably settle the contest":

...two shots put through the *Monarch's* insufficient side armour would smash the mechanism of the turrets, while the other two

would crush the ship's side at the water line. Another discharge from the four [20-inch calibre] 1000-pounders would expedite matters by making chasms of magnificent proportions through which the sea would enter with perfect freedom.^[59]

Bourne unwittingly published the letter. "It will bring out the whole strength of the Admiralty against yourself and the Monitor system," Ericsson explained, who had long and bitter experience dealing with naval professionals on both sides of the Atlantic.^[60] Within days, the Admiralty curtly informed Bourne that Ericsson's services would not be required.^[61]

The fact was, months before the arrival of the *Miantonomoh*, the great turret vs. broadside debate in Britain had led to the compromise experiment of not just one but two new capital ships, armed with turrets yet fully-rigged as *cruisers*. Plans for the *Monarch* were accepted by the Board even as Coles's own proposals were rejected, and then, when public pressure reacted once more, Coles was finally allowed to proceed with what would become the infamous H.M.S. *Captain*. Still, Reed, and much more influentially, Admiral Spencer Robinson, the Controller of the Navy, put more faith in the recently completed *Bellerophon*, and the even more powerfully-armed and armoured central-battery ironclad *Hercules*, laid down February 1st, 1866. If good seakeeping, larger engines, and greater provisions were to be had only with high-freeboard vessels, an armoured casemate housing a concentrated main armament conflicted much less with masts and sails than top-deck rotating turrets 'liable to jamming'. Almost as if to publicly ram home their point, instructions were given for the *Bellerophon* to test-fire on the *Royal Sovereign*, even while Coles finalised plans for the *Captain*.^[62]

Emboldened by the popular approval of the *Miantonomoh*, Bourne again tried to "set right" the most important engineer in England: Reed. But the Chief Constructor knew the Admiralty by then already had a full plate, observing to Robinson on the 31st of July, 1866:

I am unable to concur with the Writer's opinion that 'nothing short of considerably thicker armour and considerably heavier guns than have already been introduced can be of the least avail in maintaining our Maritime position,' because it is certain that the ships now built and building would be of very considerable avail in accomplishing that object if necessity arose.^[63]

The major concern for Reed, as always, was not Ericsson but Coles. If the *Monarch* was bound to be vulnerable at the waterline, so was the *Captain*—at least in comparison with the *Hercules*. Yet realising that Bourne had attempted to re-introduce Ericsson's services directly to the new First Lord, who was himself assuring Parliament of a proper reaction to the example of the *Miantonomoh*, Reed now pre-empted the American influence by suggesting an "improved" type of monitor. "The low protected deck, and the artificial Ventilation offer very great advantages, and where a greater height of ship is indispensable for sea-going purposes this may well be obtained by means of that system, raising the guns sufficiently to admit below them a light unplated deck and side for increasing the freeboard, and adding to the accommodation." The new Board could not help but agree. "This design, however," Reed added suggestively, "is for a Cruiser of moderate dimensions, which can only be considered as a War-Ship of the 2nd or 3rd class, adapted to conform as nearly as possible to the Views expressed in Parliament by members of their Lordships' Board." With extra resources placed at his disposal Reed also promised "the Design of a First Class Ship, suited in my judgment to secure for us that consideration from an enterprising Naval power like the United States, which ships with 7 inch and 6½ inch armour going only 5 feet below the water will not, I fear, command."^[64] Reed's "breastwork monitors" for coastal defence thus became the eventual forerunner to the *Devastation*—and beyond that, the modern battleship.^[65]

[PICTURE 16/Cerberus photo]

[PICTURE 17/Cerberus armor scheme]

Ericsson was “disgusted” with Reed’s proposed modifications to his “sub-aquatic system” of naval warfare. Despite every possible effort, monitors were obviously not to going be adopted by the Royal Navy “without barbarous mutilation”.^[66] Bourne’s rough sketch of Reed’s own vision of a perfect man-o’-war was sent the day before the Swedish-American inventor’s 63rd birthday. If there was to be any vindication for his life’s greatest achievement it was to be found in the ultimate triumph of the United States during its greatest crisis, in the historic fame, already legend, of the original *Monitor*. England’s destiny was best left to Englishmen with their own personal battles to fight, win and lose in the summer of 1866.^[67]

Gustavus Fox had reached similar conclusions while in France. An audience with Napoleon III and a visit of the talented architect of the world’s first sea-going ironclad, Dupuy de Lome, proved too intensely political over Russia and Mexico in the first instance and too disinterested over rafts and smoothbores in the second. “The President is very much complimented in England,” he wrote to Welles, “but I think it is a matter of small concern what these Governments think of us or our people, our superiority in everything excepting tinsel, epaulettes and medals can only be felt by coming over here.”^[68]

Did the *Miantonomoh* make a difference after all? Fox and Ericsson considered it a foregone conclusion even before the diplomatic mission to Russia was proposed. In that sense they were right. But their assumptions were based on the idea that what was good for the United States during the Civil War would naturally apply to the strategic and technical concerns of the British Empire, nevermind any political ramifications associated with American ingenuity and experience. It simply would not do for pockets of coast defence ironclads scattered across the globe to constitute the mainstay of British maritime ascendancy. There would always be the vast stretches of open ocean to consider in the event of war. An ironclad which could act as a cruiser was superior for the ‘command of the sea’ to an *Alabama*, even if it could not contend with a sea-going monitor in terms of armour and armament. Such tactical perfection carried a heavy strategic price which outweighed the *possibility* of such an encounter ever taking place.

This, on the other hand, said little for coastal power projection—another fundamental tenet of naval power. Yet events in history inevitably spoke louder in such matters. There was no direct threat to Britain in 1866. The monarchs of Europe were fighting amongst themselves; Russia was expanding into Asia, not India; while America was already dismantling its formidable but expensive navy for obvious reasons of its own. The ‘wooden walls’ of England were never really more effective than when they were planted just over the horizon, at sea. Perhaps this form of protection was a chimera, ultimately, especially compared to the hard evidence presented on iron target and ordnance testing grounds, or when public officials could occasionally walk the deck of a high-tech monitor. As long as the illusion of security endured, however, to all those concerned, peace was assured and risk-taking experiments were unnecessary. The *Miantonomoh* was the right ship at the right place at the right time, proving only a more subtle wisdom; that power was in the eye of the beholder.

[1] “It is difficult, perhaps impossible,” writes Australian *Endeavour* historian Alex Cook, “to study the [James] Cook voyages without emotional attachment. For Australians and New Zealanders in particular, his voyages lie at the core of our national mythologies and the issues they raise have ongoing practical relevance. Cook himself tends to be either glorified or demonised. Depending on your perspective, he is either a great contributor to human knowledge or an advance party for an invasion force. Disputes rage concerning Cook’s personal vices and virtues as well as the extent to which the subsequent history of settlement is implicit in the moment of first contact. These disputes will certainly not be settled by our voyage. Indeed, our crew remains divided in its attitudes to the man and his legacy,” www.bbc.co.uk/history/programmes/theship; also www.barkendeavour.com.au.

[2] See Gary Weir, *An Ocean in Common: American Naval Officers, Scientists, and the Ocean Environment* (College Station, 2001), 270-6; 334-5.

^[3] Jules Verne, *20,000 Leagues Under the Sea* (New York, reprint of the 1870 original), 369.

^[4] In his Report to Congress of 1866 Secretary of the Navy Gideon Welles stated they were “never designed by the Department for cruising purposes, but for harbour defence and operations upon our coast...and be able to disperse and destroy any blockading fleet which may appear,” *Appendix to the Congressional Globe, 39th Congress, 2nd Session, Report of the Secretary of the Navy, December 3, 1866*, 41.

^[5] For a cynical perspective of this gesture, offered by Britain’s Minister to Russia, see 12-9-1866, Sir Andrew Buchanan to Lord Stanley, British Public Record Office/National Archives, Kew (hereafter “P.R.O.”), F.O. 65/701.

^[6] One reason for delay was the Bureau of Construction’s insistence that the turrets be fitted with hand-turning gear; see 12-10-1864, John Lenthall to Rear-Admiral Francis H. Gregory, U.S. National Archives Record Group (hereafter “N.A. Record Group”) 19, Records of the Bureau of Ships, Entry 1240, PI-133, “Letters Received From Navy Department Bureaus, January 1864 – September 1866,” Box 1.

^[7] *Dictionary of American Fighting Ships*, Vol. 3(Washington, D.C.: Navy Department, Office of the Chief of Naval Operations, Naval History, 1968), 767-8. Tonnage is ‘new tonnage’; old was designated as 1,564.

^[8] 22-3-1862 and 24-3-1862, Fox to Ericsson, Gustavus Vasa Fox Papers, New York Historical Society Library Manuscripts, New York, NY, Box 5.

^[9] 15-3-1862, Ericsson to Fox, Fox Papers, New York, Box 3.

[10] P.R.O., ADM 1/5879 (From Captains A – G, 1864), “Report on Ships of United States Navy 1864”, 33-4.

[11] P.R.O., F.O. 5/1065, 15-5-1866, Bruce to Clarendon. See Bythesea’s own report on the strength of the U.S. Navy, dated 19-8-1865, in P.R.O., ADM 1/5954 (From FO, July-December, 1865). Bythesea had the distinction of being one of the first to have received the Victoria Cross, on 26-6-1857, for service in the Crimean War.

[12] 22-3-1866, Ericsson to Fox, Ericsson Papers, American-Swedish Historical Foundation, Philadelphia, PA. See also 17-3-1866, Ericsson to Fox, Fox Papers, New York, Box 11, where he complains “the time necessary to plan the *Monitor* formed only a fraction of what has been requisite to defend it.”

[13] Quoted from John Ericsson, *Contributions to the Centennial Exhibition* (New York, 1876), 465-6.

[14] 28-2-1865, Bourne to Ericsson, from William Conant Church, *The Life of John Ericsson*, 2 vols. (New York, 1907), 2: 80-1.

[15] 12-1-1865, Ericsson to Bourne, Ericsson Papers, Library of Congress (hereafter “L.O.C.”); also 15-12-1865, Ericsson to Bourne, *ibid.* For accounts of this voyage see the reports and private letters of Commodore John Rodgers, Rodgers Family Papers, L.O.C.

[16] 16-1-1866, Ericsson to Bourne, Ericsson Papers, L.O.C.

[17] See 10-1-1866 and 19-1-1866, Admiral Spencer Robinson to Board of Admiralty, P.R.O., ADM 1/5980 (From Surveyor, January – June, 1866).

[\[18\]](#) 25-5-1865, Grey to Captain Cooper Key, National Archives of Scotland (General Register House); GD 51/17/68 (NRA 10188), Private Letterbook of Rear Admiral Sir F. W. Grey, 1861-66.

[\[19\]](#) See 5-2-1866, Robinson to Board, P.R.O., ADM 1/5980; 11-4-1866, Robinson to Board; Parliamentary Papers, 5-3-1866 and 16-4-1866, “Navy (Turret Ships)”, “Correspondence between the Admiralty and Captain Cowper Coles, relative to Turret Ships, and Papers relating thereto (in continuation of Parliamentary Paper, No. 87, of Session 1866),” 8.

[\[20\]](#) 3-4-1866, Ericsson to Bourne, Ericsson Papers, Philadelphia; see also 27-4-1866, Ericsson to Bourne, Ericsson Papers, L.O.C.

[\[21\]](#) 10-2-1866, Ericsson to Fox, Fox Papers, New York, Box 11. See also 2-3-1866, Ericsson to Fox, *ibid.* On Coles’s claim of turret ship progenitor, see 3-2-1865, Ericsson to Bourne, Ericsson Papers, L.O.C; also James. P. Baxter, *The Introduction of the Ironclad Warship* (Cambridge, 1933). Nor was Coles above using Ericsson’s advances to further his own; see his letter to Richard Cobden, dated 8-4-1864, regarding the consequences of an action between the *Dictator* and Reed’s newest central-battery ironclad, H.M.S. *Bellerophon*, and Cobden’s own observation, dated 12-11-1864; Cobden Papers Collection, Chichester, West Sussex Record Office.

[\[22\]](#) 23-4-1866, Fox to Ericsson, Ericsson Papers, Philadelphia; also Church, *Life of John Ericsson*, 2: 77.

[\[23\]](#) See 27-7-1866, Ericsson to Bourne, Ericsson Papers, L.O.C. Though Ericsson felt it was Fox’s due, and stated he would not interfere with his efforts, he could not “imagine

that he ever entertained the absurd idea of building anything in the way of ships for the great Mechanical Island Nation.” A likely customer might be warring Prussia.

[\[24\]](#) 26-1-1866, Fox to Ericsson, Ericsson Papers, L.O.C.

[\[25\]](#) Charles B. Boynton, *History of the Navy During the Rebellion*, 2 vols. (New York, 1867), 1: 66-7. Boynton expressly intended his history to vindicate the reputation of the monitors at Charleston and “go no further into the history of the ‘Old navy’ at present than to show that our navy is an original creation, a true outgrowth of American thought,” 17-8-1866, Boynton to Welles, Gideon Welles Papers, L.O.C.

[\[26\]](#) Journal entries dated 17-, 21- and 23-5-1866; Howard K. Beale (ed.), *Diary of Gideon Welles: Secretary of the Navy under Lincoln and Johnson*, 3 vols. (New York, 1960), 2: 509, 512, and 625-6. A letter to *The Scientific American*, 9-6-1866, opposed giving up valuable secrets, gained from hard-fought experience, by sending a monitor to “our great maritime rival”, 395-6.

[\[27\]](#) Once at sea, *Ashuelot* proceeded separately to Boston to pick up Assistant Secretary Fox and Captain Bythesea, who later joined the rest of the squadron at St. John’s, Newfoundland on the 3rd of June; 4-5-1866, Welles to New York Navy Yard; 4-5-1866, Welles to Commander Alexander Murray, N.A. Record Group 45, Office of the Secretary of the Navy, Entry 15, “Confidential Letters to the Secretary of War and to the Officers of the Army, the Navy, and the Marine Corps, Nov. 1861-Sept. 1875,” Volume I.

[\[28\]](#) Undated, suggested improvements for *Miantonomoh*, Fox Papers, New York, Box 11; John D. Champlin, Jr. (ed.), *Narrative of the Mission to Russia, in 1866, of the Hon. Gustavus Vasa Fox, Assistant-Secretary of the Navy, from the journal and Notes of J. F. Loubat* (New York, 1873), 26-8. In port, her “peculiar construction” wrote Commander Alexander Murray of the *Augusta*, “creates the usual excitement in the Military and

Naval mind and it has not been deemed proper to prohibit the rush of visitors,” including among them Admiral Sir James Hope, the Commander-in-Chief of the North American and West Indies Station. A reporter for the Halifax *Sun* was duly impressed with the *Miantonomoh*’s construction, massive armament, and the spacious Captain’s cabin “heated by steam, applied to ventilators”, but was even more enthralled by the ship’s armoury containing shiny new “Sharp’s breech loading rifles” and “Colt’s six-shooter pistols”. Interestingly enough, the small central-battery ironclad H.M.S. *Favorite*, who Oscar Parkes noted as a particularly heavy roller at sea, arrived there the same day from England—to bolster the Station with an ironclad; 11-5-1866, Murray to Welles, N.A. Record Group 45, Letters Received by the Secretary from Commanders, 1804-1886; Halifax *Sun*, 14-5-186; Oscar Parkes, *British Battleships, 'Warrior' 1860 to 'Vanguard' 1950: A History of Design, Construction and Armament* (London, 1970), 92.

[\[29\]](#) 5-6-1866, Fox to Welles, Gideon Welles Papers, L.O.C. Fox observed the squadron was “typical of the changes of naval warfare—a monitor, double-ender and converted merchant vessel.”

[\[30\]](#) 16-6-1866, Murray to Welles, N.A. Record Group 45, Letters Received by the Secretary from Commanders. Fox’s own assessment was more to the point: “The performance of this vessel, her accommodations, ventilation, and light to read below without candles [through overhead rather than bulwark glass scuttles] are all that could be desired and it is only necessary for the Dept to build one for ocean cruising for us to have a sea going cruiser that will perform in a superior manner to any wooden ship. Letting the water over is the true principle: it gives stability, protection and economy of construction...For coast service this class of vessel cannot be surpassed at the present condition of iron clad information. We have not much power in this vessel and space is wasted that ought to have been studied for economy. The third day out from St. Johns I began to suspect that we had not the quantity of coal given to me so the Augusta has given us a tow of a week,” 16-6-1866, Fox to Welles, Welles Papers, L.O.C. Towing

appeared to reduce consumption to one ton per hour; 23-7-1867, Murray to Welles, in *Congress Return*, 67, 69-70.

[\[31\]](#) Champlin, *Narrative*, 32.

[\[32\]](#) Donald L. Canney, *The Old Steam Navy, Volume Two: The Ironclads, 1842-1885* (Annapolis, 1993), 66-70.

[\[33\]](#) Champlin, *Narrative*, 32.

[\[34\]](#) D. K. Brown, *Warrior to Dreadnought: Warship Development 1860-1905* (London, 1997), 56. “The extreme lurch observed when lying broadside to a heavy sea and moderate gale was seven degrees to windward and four degrees to leeward, mean five and one-half degrees, while the average roll at the same time of the *Augusta*—a remarkably steady ship—was eighteen degrees, and the *Ashuelot* twenty-five degrees, both vessels being steadied by sail,” Champlin, *Narrative*, 33. Lieutenant M. S. Stuyvesant of the *Miantonomoh*, who had also served aboard the *Passaic*-class monitor *Weehawken*, recounted at an 1898 meeting of the Military Order of the Loyal Legion how 21 years earlier the *Miantonomoh* “went out of the port of Toulon...into a stiff levanter with short and nasty seas,” “For hours the monitor dipped up solid water 6 or 8 feet deep on her bows, and, riding easily, tossed most of it overboard before it reached the forward turret. Her rolling and pitching was easy and moderate... During the day we happened to pass a squadron of French ironclads going in the opposite direction. They were rolling deeply and violently, had lost some of their boats, and we were informed later that they had lost some of their men—washed overboard,” 21-3-1898, U.S. Senate, Document No. 197, 55th Congress, 2nd Session, “Monitors v. Battle Ships”, 4-5. For additional eye-witness European opinions see the 3-12-1866 Report of the Secretary of the Navy, Appendix to the *Congressional Globe*, 39th Congress, 2nd Session, 41.

[\[35\]](#) Fox considered rather monumental success a foregone conclusion, writing to Welles on 30-5-1866 “the voyage of the vessel and my report will be a justification of your administration. Europe will give you the endorsement which at present our own people bestow grudgingly,” Welles Papers, L.O.C. In evidence to the 1871 Parliamentary Ship Design Committee, Assistant Constructor Nathaniel Barnaby opined “although the ‘Miantonomoh’ made passages across the Atlantic, she was the first ship of the kind which had done so, and the officers and men put up with a great deal of inconveniences rather than complain of her. If we were to build such ships as the ‘Miantonomoh’ and the ‘Monadnock,’ and send them to sea, we should never hear the last of the complaints about them,” *1871 Report of the Committee...to Examine the Designs Upon Which Ships of War Have Recently Been Constructed* (London, 1872), 50.

[\[36\]](#) Canney, *Ironclads*, 62, 79-80.

[\[37\]](#) *1871 Report of the Committee*, 34-41. See also the copy of Bythesea’s report to Earl Clarendon, dated 16-6-1866, including a log account of the *Miantonomoh*’s first crossing, in P.R.O., ADM 1/5992 (From FO, June – Dec., 1866).

[\[38\]](#) 30-6-1866, *The Illustrated London News*, 639-41; 651-3.

[\[39\]](#) 27-6-1866, *London Times*.

[\[40\]](#) 28-9-1866, *London Times*.

[\[41\]](#) 14-7-1866, *The Scientific American*, 34. See also 13-7-1866, Ericsson to Wise, Ericsson Papers, Philadelphia.

[\[42\]](#) 29-6-1866, Fox to Welles, Welles Papers, L.O.C.

[43] 30-6-1866, *London Times*.

[44] 2-7-1866, *London Times*. See also “Monitors versus Ironclads”, in *The Nautical Magazine and Naval Chronicle* (London: Simpkin, Marshall, and Co.), June 1867, 308-9.

[45] 2-7-1866, *London Times*. See also Ericsson’s 3-5-1862 advocacy of curved, laminated turret-armour schemes to Gideon Welles, Welles Papers, L.O.C. What is known today as compound armour helped lessen the shock of impact. But see also his preference for perfectly-welded solid plates, if readily available to the United States, to Fox, 10-6-1862, Fox Papers, New York, Box 3. Target tests conducted by the Ordnance Select Committee at Shoeburyness in 1867 seemed to support Ericsson’s original calculations, 11-10-1867, Ericsson to Wise, Ericsson Papers, Philadelphia; *Third Report of the Director of Ordnance, being of the year 1867-8* (War Office, 1869), P.R.O., W.O. 33/19, 1868, 40-1; 30-10-1868, Report No. 5164, *Abstracts of Proceedings of the Ordnance Select Committee, from 1st October to 7th December, 1868; and of the Department of the Director General of Ordnance from 8th December to 31st December, 1868* (London, 1869), P.R.O., W.O. 33/20, 1869, 865.

[46] See for example, Alfred Grant, *The American Civil War and the British Press* (Jefferson, 2000).

[47] See especially the remarkable shift in *Punch*, from 3-12-1864, “The Federal Phoenix” to 6-5-1865, “Britannia Sympathises with Columbia”.

[48] 5-7-1866, *London Times*.

^[49] 14-7-1866, Adams to Seward, No. 1239, *U.S. State Department, Papers Relating to Foreign Affairs, Second Session, Thirty-Ninth Congress, Part I* (Washington, 1866), 149.

^[50] 14-7-1866, *Punch*, “Venus and Valour”, 13; 17-6-1866, *London Times*.

^[51] *Hansard*, 20-7-1866, “State of the Navy”, 1167-1198.

^[52] Philip Magnus, *Gladstone: A Biography* (London, 1970), 172; see also Thomas Archer, *Gladstone and His Contemporaries*, 4 vols. (London, 1899), 4: 181-3. *Harper’s Weekly* declared it was “a foolish injustice which charges Mr. Gladstone with reducing the liberal majority of seventy in the House of Commons to a minority of eleven. He did not do it. The present Parliament was elected upon the cry of Palmerston and anti-Palmerston, not upon any policy or principle. Palmerston carried the day; but he was opposed to Reform, and his policy was merely brag and inaction. He had no political convictions whatever, unless a hearty desire to maintain the existing condition can be called a principle,” 21-7-1866, “Mr. Gladstone”.

^[53] 26-7-1866, Adams to Seward, No. 1246, *U.S. State Department, Papers Relating to Foreign Affairs, ibid*, 156.

^[54] See for example G. S. Graham, *The Politics of Naval Supremacy: Studies in British Maritime Ascendancy* (London, 1965), 96-125.

^[55] 16-7-1866, *The London Times*.

^[56] Contrast this worried reaction to that on the other side: “We are well satisfied with the fact that we can build the most invulnerable gunboats, and manufacture the most effective artillery, without proving these facts, in time of peace, to the satisfaction of those who

may be our enemies, and, in consequence of our own foolish demonstration, be enabled to fight us with our own weapons,” 18-8-1866, *The Scientific American*, 119.

[57] John Bourne, “On the American System of Turret Ships”, 23-3-1866, *Transactions of the Institution of Naval Architects*, Seventh Session, 1866, 131-43.

[58] See Church, *Life of Ericsson*, 1: 88-91; 2: 82.

[59] 3-4-1866, Ericsson to Bourne, Ericsson Papers, Philadelphia.

[60] 11-5-1866, Ericsson to Bourne, Ericsson Papers, *ibid.*

[61] 13-4-1866, William Romaine (Admiralty Secretary) to Bourne, Church, *Life of Ericsson*, 2: 82-4.

[62] 25-5-1866, P.R.O., ADM 3/272 (Special Minutes from the Board, 1865, 1866, 1867).

[63] 31-7-1866, Robinson to Board, No. 3205, “Construction of Armour Plated ships”, P.R.O., ADM 1/5981 (From Surveyor, July – September, 1866). Reed and Bourne’s letters are attached, as well as comments from the Board. See also 14-7-1866, Bourne to Ericsson, Ericsson Papers, Philadelphia.

[64] *Ibid.* These proposals were later codified in the Controller’s submission to the Board, printed *New Designs for Ships*, Admiralty, S.W. 20th November, 1866, P.R.O., ADM 1/5982 (From Surveyor, October to November, 1866).

[65] See Oscar Parkes, *British Battleships*, 166; Brown, *Warrior to Dreadnought*, 56-7; also Stanley Sandler, *The Emergence of the Modern Capital Ship* ((Newark, 1979).

[66] 16-8-1866, Ericsson to Bourne, Ericsson Papers, Philadelphia.

[67] See Ericsson's stunning letter to Bourne dated 1-5-1866, in Church, *Life of Ericsson*, 2:86-8.

[68] 5-7-1866, Fox to Welles, Welles Papers, L.O.C.



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