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John Ericsson, the Monitors, and Union Naval Strategy

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John Ericsson and the Revolution in Naval Warfare 1850-1880

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The title of my paper is a 'Trinity' of sorts—"John Ericsson", "the Monitors", and "Union Naval Strategy"—and each element is part of, a consequence of, the other. It is inappropriate to discuss Ericsson in any symposium without addressing his most notable, if not crucial invention (arguably), the ironclad U.S.S. *Monitor*; impossible to make note of that particular warship and her follow-ons without acknowledging Ericsson's central role in their construction; and altogether *bad history* to explore the naval strategy of the Union during the great American Civil War of 1861-1865 without stressing the utter reliance of the United States and its Navy upon both the monitors and Ericsson—upon its front-line fleet of ironclads, and one man. All three elements were dependent upon one another for their success, a sort of causal loop which I will briefly try to describe to you, here and today. The occasion is more than appropriate, if not also momentous: this year is Ericsson's personal bicentennial, the revolutionary steam-powered gun turret of the *Monitor* has recently been raised, ready to be housed in the most ambitious ship museum in American history, the "*Monitor Center*", as part of the 'National Maritime Museum' of

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the United States, the Mariners' Museum at Newport News, Virginia; and today also American naval strategy and power dominates world headlines—calling forth serious questions, and demanding insights, if not “answers”, from history. Indeed, John Ericsson, the *Monitor* and U.S. naval strategy have each come a long, long way from the turbulent mid-19th century.

First off, however, a word on Union ironclads in general. In the course of the Civil War the United States laid down approximately 82 armoured warships. Of these, 61 (or 74%) were turreted; though it is difficult to count the converted, relatively high-freeboard triple-turreted U.S.S. *Roanoke* as a proper “monitor”. Then again, nine of these (or 15% of the turreted vessels) were acutely for river-service, such as the paddle-wheeled *Osage* and *Neosho*, the twin-stacked *Ozark*, and the double-turreted *Milwaukee*-class; while the twenty rather notorious ultra-light draft monitors were intended more for river and inner-coastal operations. The remaining 51% of the turreted vessels (or 38% of the total number of ironclads laid down by the North during the Civil War) therefore consisted of the original *Monitor*; the ten second-generation monitors of the *Passaic*-class; the nine third-generation monitors of the *Canonicus* (or *Tippecanoe*)-class; the *Onondaga* (designed with no upper-hull or “raft” overhang); Ericsson's two monster, “ocean-going” monitors, the *Dictator* and *Puritan*; and the four Navy-designed, double-turreted monitors of the *Monadnock*-class—and the four huge, ocean-going, *Kalamazoo*-class follow-ons. Perhaps a more revealing statistic is the number of ironclads actually completed before the war ended: 48, or roughly 59% only, of which 30 were turreted, and ten of these were for river or inner-coastal service. Though *Puritan* was launched in July of 1864, work was suspended, and she was never completed; the four *Kalamazoos* were never launched and broken up on the stocks, yet the four monitors of the *Monadnock*-class were all commissioned before the end of 1865, as well as 14 of the 20 ultra-light drafts.

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Another significant point about the turreted-vessels, at least, is that all of them except the *Kalamazoo*s were approved before the end of 1862. Hence the Union made be said to have committed its ironclad building program, if not the formulation of its naval strategy, by the same date. Considering that the U.S. Government had not established its first Ironclad Board to review design proposals until the summer of 1861, and did not formally contract for Ericsson's original *Monitor* until the beginning of October, this fact stands as an impressive one in the annals of warship-design and decision-making. It also begs the important question of whether or not the Union's strategic requirements as they stood by the end of 1862 would remain as "ironclad" as the ships themselves. In other words, a warship built to meet specific circumstances might only prove effective as the circumstances during war themselves remained unchanged. As a result, there was always a high probability that the monitors might not prove themselves entirely useful; might not simultaneously and continually satisfy every facet of shifting strategic priorities. The added fact that the U.S. Navy had approved over fifty turreted-vessels without the benefit—if not the luxury—of careful and deliberate—if not exorbitant—experimentation first made the whole venture even more precarious.

Therefore, in order to try to better understand the impact of John Ericsson and the monitors on Union naval strategy—and vice-versa—I will am therefore also confining this brief paper to the causes and not the effects of the decision-making that went on in this specific, initial and all-important time-frame, 1861-1862. As such, this paper begs another question: at what point does a war determine the type of ships that will fight it, and the ships determine the type of war that will ultimately be fought?

Even before the outbreak of hostilities there was an inherent confusion as to whether the American navy should invest in ironclad *ships* or *batteries*. On February 2, 1861, the foremost professional authority on the subject, Commander John A. Dahlgren (who had developed the Navy's formidable shell-firing guns, studied the Crimean War very closely, and kept up on technical developments in Europe) wrote to Senator James

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Grimes of Iowa, that it was “advisable that the construction of some armored Gun Boats should be proceeded with.” But this should not be “to the exclusion of at least the one heavy frigate” which Dahlgren specified as a ship “of 5000 to 6000 Tons”, and which “may cost 1¾ to 2 millions which is the estimated expense of the English Plated-frigate *Warrior*, just launched—\$500,000 will do to begin with.” Haste was needed, “for with all effort it would not be possible to get a ship ready for service in less than two years.” This was unusual, since the previous month he informed the House Chairman of Naval Affairs that “Gun Sloops [were] a class of vessel more needed in the Navy than any other”—if an ironclad were to be considered—suggesting the recent *Iroquois*-class as a model to be plated.^[1] What was a long-range, ocean-going ironclad needed for? The ordnance expert did not specify, but noted instead an inquiry “from one of our most eminent private Ship Builders” (Donald McKay, of Boston) on armament schemes for various classes of ironclads. “Unless Government acts promptly,” Dahlgren cautioned, “it will be anticipated by private enterprise.” Presumably, this would be a fate worse than falling behind England or France. Nevertheless, in response to Donald McKay’s inquiry, Dahlgren had to “regret to perceive that this Congress is not likely to make any appropriation for constructing an Iron plated ship.”^[2]

With a civil war looming, it was difficult to determine what kind of naval force would be needed to protect, if not preserve, the Union. The U.S. Navy’s instincts were blue-water; the disposition of its existing warships, protecting far-flung American commercial interests, was proof of that. The initial public and professional reaction to European ironclad programs was to meet them on similar terms, differences in broadside armament notwithstanding. Yet John Lenthall, Chief of the Bureau of Ship Construction and Repair, rejected many early proposals coming into the Navy Department, typically because “the necessarily large size, the cost and the time required for building an iron cased steam vessel is such that it is not recommended to adopt any plan at present.”^[3]

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For that matter, opinions across the Atlantic were not so clearly united either. “We cannot, with our wide-spread dominions, or colonies and commerce dotted all over the surface of the globe, expect to be superior at every assailable point,” argued *Blackwood’s* in March 1861, “and we should utterly fail if, in the event of war with a great maritime power, we attempted to be everywhere in force at the same time—a strategy which seems to be indicated by the powerful efforts made to produce that marine impossibility, great fighting-power and great speed.” Instead, Britain should have “a number of iron-clad vessels for the defence of our coast and narrow seas. Let them be capable of going as far as Brest or Cherbourg on the one hand, and Antwerp, Rotterdam, or Copenhagen on the other.”⁴¹

The answer was, like the American Civil War itself, two-dimensional; the national and the international. We cannot appreciate the domestic concerns of Lincoln’s new administration, when thirteen states out of 32 formally seceded from the Union to form their own, *Con*-federate nation, and three central border states to the Southern and Northern blocs declared their “neutrality”, without acknowledging the vital influence of America’s foreign relations. Secretary of State William H. Seward’s original suggested solution to the secession crisis was to instigate a war with one or more European Powers, namely England, France or Spain. This, it was assumed, would serve to rally a unified American nationalism in the face of a common, external foe. The *New York Herald* in the summer of 1861, heady with the mobilization of both Northern and Southern arms, agreed with Seward but went much further. Now was the time, it argued, for both portions of the country to take what they wanted further North and South, not West. “At an infinitely less cost than the civil war now begun is likely to entail upon the land, and with far less expenditure of life, every square mile of territory between the Orinoco river and the North Pole may be annexed to the Union, and such a nationality be forged out of our present dangers as the history of the world has never witnessed. It would be time enough, later, to consider whether so magnificent a structure should remain undivided...”

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On the other hand, the South recalled the pivotal role played by France and Spain in securing the independence of the original thirteen colonies from the British Crown some 80 years before. European intervention in the mid-19th century could prove even more decisive—a factor painfully obvious to Northern strategists as well. The American conflict had to be kept *American* by the Federal government, otherwise the continent would likely become another Europe, perpetually divided, paralysed by a mutually suspicious balance-of-power system—and often at war with itself. Lincoln envisaged instead a super-power republic, rich with continental-sized natural and human resources, and poised to inevitably condition the earth with its own political and social ideals—traditionally in direct contrast to those of European monarchies and class structures. Yet to attain even this, the Southern Confederacy, first and last, had to be contained, and *then* stamped out.

The blockade of the Confederacy was therefore everything. If the South was soon deprived of exporting its only commodity, cotton, it simply could not afford to resist the North for long. (By the end of 1862 Lincoln also realised that by depriving the South of its commercial labour force—by freeing the slaves—it might also be unable to prosecute a major, modern war.) Diplomatically isolated from the rest of the world as well, the demoralized Southern populace might quickly recognise that victory was hopeless.

In order to blockade some 3,500 miles of Confederate coastline from the Norfolk, Virginia to Galveston, Texas, and wrest control of the great Mississippi river from Cairo, Illinois to New Orleans, Louisiana, the North was able to draw upon its enormous superiority in maritime, industrial, and economic resources to buy and build a collection of wooden paddle-wheel and screw-propelled steamers, from lightly-armed gunboats and converted merchantmen to heavily-armed sloops and frigates. Against this force the South had little to offer. But this was also a profound period of technological possibilities. The Secretary of the new Confederate States Navy, Stephen Mallory

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immediately looked to armour-plated steamships as a means of turning the hunter into the hunted—of placing a wooden blockade at the mercy of a few ironclads, broadsides at the mercy of rams. Realistically-speaking it was his only strategic and material alternative. His ironclad program, which we know began with the salvaged wreck of the U.S.S. *Merrimac* at Norfolk, consisted of both domestically-manufactured ironclads and any that Confederate agents could procure in Europe.

A much more serious threat to the makeshift Union blockade was European naval power itself. Although the U.S. Navy by the outbreak of the Civil War had made impressive strides in arming its new steam frigates and sloops with select batteries of heavy ordnance, it could in no way hope to prevent the Yankee merchant marine worldwide, second only to Britain's, from being swept away by the Royal Navy, or keep U.S. coastal defences from being overwhelmed and its own ports blockaded. To make matters worse, European powers were also already committing themselves to ironclads. As *Scientific American* exclaimed in the beginning of 1860, “at present we have not a single first class war steamer—one that can compete with the most recently built French and British ones, and we regret that the Secretary of the Navy has not paid attention to these—we mean the iron-cased war wolves.”¹⁵¹

John Ericsson had in the meantime already devised what he regarded as a technological solution to at least numerical naval superiority. His original “sub-aquatic” system of naval warfare, submitted to Napoleon III during the Crimean War, carried within it all the basic attributes we have come to recognise in the *Monitor*: low-freeboard, light-draft, iron-hulled, and mastless, with an overhang to protect the screw, rudder, anchor and hull, and featuring a heavily-armoured rotating turret mounting a small but heavy battery designed to kill ships at short range with singular blows rather than with withering broadsides or long-range fire. As Ericsson himself later recounted, the “new system of naval attack will place an entire fleet of sailing vessels, during calms and light winds, at the mercy of a single craft...A fleet at anchor might be fired and put in a

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sinking condition before being able to get under way.”^[6] This was also clearly to be a means of breaking blockades, a weapon of coast defence, and for assaulting enemy ships trapped in their own defended bases—presumably such as Portsmouth or Plymouth.

Ericsson’s 1854 proposal, however, came at the wrong time and place. England was allied with France against Russia during the Crimean War. Coastal assault meant overpowering fortifications, and for this armoured broadside-batteries were successfully built and utilised. The French had their own ideas of a model ironclad as an armoured sail-and-steam frigate, which would indeed have just done the job of destroying wooden ships-of-the-line, if nothing else, but also in conditions beyond “calms and light winds” if need be.

Nevertheless, with the outbreak of the Civil War in America, Ericsson found a more perfect application of his ideas. The Union’s wooden blockade would need defending from Confederate naval challenges from within as well as potential European ones from without. This called for a warship-killing warship to effect Union naval supremacy, not an anti-fortification battery. Hence his offer to Lincoln of August 29th, 1861, which sought “no private advantage or emolument of any kind” for his ironclad proposal, since a thousand of his caloric engines already provided him with enough personal means. “Attachment to the Union alone,” he wrote, “impels me to offer my services—my life if need be—in the great cause which Providence has called you to defend.” His battery could within 10 weeks “take up position under the rebel guns at Norfolk and...within a few hours the stolen ships would be sunk and the harbor purged of traitors.” Ericsson concluded by drawing the President’s attention to the “now well established fact that steel clad vessels cannot be arrested in their course by land batteries”. New York was therefore “quite at the mercy of such intruders, and may at any moment be laid in ruins”—unless the Union possessed ironclads impervious to Britain’s “Armstrong Guns” and were armed in turn with armour-crushing ordnance.^[7]

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This was therefore one point in Ericsson's favour, when the Ironclad Board convened that same summer to consider proposals from the private sector: his system was distinctly anti-ship, inasmuch as Confederate ironclad strategy was also more concerned with sinking Federal warships first and possibly laying Northern coastal towns under "contribution" second. As Confederate Secretary of the Navy Stephen R. Mallory declared less than two weeks after Lincoln's Proclamation of Blockade^[8], an ironclad "could traverse the entire coast of the United States, prevent all blockades, and encounter, with a fair prospect of success, their entire Navy."^[9] None of the other submissions made that summer, including the comparatively more conventional *New Ironsides* and the *Galena*, seemed to stress this particular trait more than the Ericsson's battery. *New Ironsides*, after all, was to be originally armed with sixteen 9-inch Dahlgrens, so nothing distinguished her actual offensive powers from another any other frigate. Yet once the *Galena*'s own contractor, Cornelius Bushnell, famously went to Ericsson to check his ironclad's stability and strength, and encountered a model of Ericsson's own instead, he proceeded immediately to Gideon Welles, the U.S. Secretary of the Navy, and Lincoln, presented the model on Ericsson's behalf, and announced they "need not further worry about foreign interference; I [have] discovered the means of perfect protection."^[10]

As a result, three contracts were awarded: to Bushnell, for the *Galena*; to Merrick & Sons, for the *New Ironsides* (a relatively small, seagoing, broadside-ironclad prototype); and for Ericsson's *Monitor*, which seemed even at this stage in the Navy's ironclad program to meet the needs for the Union's coastal and river operations, for at least the domestic purposes of the Civil War. That such a turreted, coastal defence ironclad could make headway at all with the U.S. Navy in 1861 reflects more perhaps on the contingency of the Civil War itself, rather than a rejection of its Blue-Water instincts. "As Mallory felt he must gamble on ironclads," historian John Niven writes, "so Welles felt he must gamble on Ericsson."^[11] There was no guarantee, indeed, that Congress would be willing to invest in a wide-ranging ironclad force to 'compete' with England or France after the war. Given past tendencies, in fact, this must have seemed highly

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unlikely. But in 1861, especially after the 1st Battle of Bull Run (21 July 1861), there was no guarantee that the war could even be won by the Union either. By the end of the year, it would be doubtful whether the war could be contained.

Indeed, in the midst of the frenzied construction of Ericsson's battery in New York news of the capture of Confederate emissaries James Mason and John Slidell from the British mail packet steamer *Trent* reached Washington. The following day, November 16, Ericsson forwarded to Commodore Joseph Smith, one of the three Board members, the Chief of the Bureau of Yards and Docks, and nominal supervisor of the ironclads' construction, an account of his ship in the latest *Scientific American*, which he found "admirably clear". "In view of its bearing on the harbor defenses of the country," Ericsson noted, "I respectfully suggest to the promoters of the enterprise to present a copy to the Secretary of State." Smith was not pleased, regretting "to see a description of the vessel in print before she shall have been tested." Also wary of publicity "damaging alike to the enterprise and the navy," however, is what prompted Ericsson to supply the press with an accurate description. "We are closely watched by hundreds, and the work has now progressed so far that many imagined they saw enough to judge of the result," he explained. This was not an effort on the part of the inventor to merely preserve his own reputation. The all-important sense of Northern morale, in relation to national security, was at stake.^[12] Not without ominous irony, the same article in question led with a description of the *Warrior*. "She has proved herself to be the fastest large war vessel afloat," as reported in the British press, "as she is no doubt the most powerful." Including the "new iron-clad gunboat" building at the Continental Works, Greenpoint, the U.S. "had no less than five iron-clad ocean war vessels in progress of construction, besides several iron-plated river steamboats on the Mississippi":

We are therefore making considerable progress toward securing an iron-clad navy, although, with but one exception, perhaps, none of these vessels will be first-class; still they may prove very

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efficient, and answer all the purposes demanded by the exigencies
of the times.^[13]

By the end of 1861 these naval requirements of the Union were distinctly double-edged. Reflecting after the immediate crisis over the *Trent* had passed, *Blackwood's* spelled out very clearly what dangers perpetually threatened the United States during the Civil War—from the other side of the blockade; from possible offensive actions conducted by Royal Navy:

There are two modes of carrying on war with America—one aggressive, the other defensive. We shall probably adopt both. We shall assail their harbours, burn their fleets, destroy their commerce, and keep their whole seaboard in a state of constant alarm; and we shall give employment by these means to no inconsiderable portion of the half million of men whom they boast to have under arms. But we shall have a defensive war likewise to provide for, on the side of Canada.^[14]

Against this backdrop work on the *Monitor* continued at a fever pitch. “I wish we had your vessel now,” Smith wrote to Ericsson, three days after the *San Jacinto* forcibly removed Mason and Slidell from the *Trent*. “The Govt. must create a fleet of plated Gun Boats. They will cost much less & will be more effective than the Army.” Lincoln knew that with the new Union commanding general, George McClellan, still sitting with his newly reformed Army of the Potomac—the conspicuous absence of Northern military victories, or even offensive operations against the South—European powers were further tempted to intervene in what they regarded as a hopeless and unnecessary struggle damaging to all. This only transferred pressure for success to the Union Navy. On November 17, an expedition under Commodore Samuel F. Du Pont succeeded in overwhelming the fortifications defending Port Royal. Now the controversial blockade

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of the southern Atlantic ports would be strengthened with a valuable Union base halfway between Savannah and Charleston. The presence of an entire flotilla of light-draught ironclad batteries might therefore lead to even more ambitious projects against the Confederacy, while at the same time acting in the capacity of harbour and coast defence. Smith tantalized Ericsson. “Already I think the Department contemplates augmenting this description of force,” he indicated, though the decision would not be in his hands. Furthermore, “all the mistakes we may make I suppose may turn to the advantage of others.”^[15]

What Smith was referring to was the influential Assistant Secretary of the Navy, Gustavus Vasa Fox’s desire for a fleet of twin-turreted ironclads of relatively low-freeboard and twin-screws, which he pressured Lenthall and the Chief of the new Bureau Steam Engineering, Benjamin Isherwood—Ericsson’s bitter professional rivals—to fashion for the Navy. Fox had more victories like Port Royal in mind, and these ironclads, he felt, would be instrumental in cracking more fortified Southern harbours. Their designs were duly drawn up by the end of November 1861, reported to Welles, and included in the Secretary’s annual Report to Congress of December 2nd.^[16]

The exact purpose of these twenty new Union ironclad gunboats, estimated at \$16,530,000, was however still a matter of debate in Congress. Could private contractors be relied upon to produce them in time, and without extravagant price? How would the inability of either the Navy Yards or commercial firms to produce the necessary quantity of iron armour plates complicate these concerns? What ironclad designs were best for the Union? As a Representative from Ohio stressed, the ironclads “should be constructed as soon as possible”, since “they will be needed in case of the occurrence with a foreign Power of the war which seems impending over us...” The House Chairman of Naval Affairs, Charles B. Sedgwick, disagreed—or at least misunderstood the implication. The vessels in question were “not required for any such purpose” and in fact “it did not enter into the design of the Department in recommending them. They are required at home, for

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use here...¹⁷¹ Two days previously he described them as “intended to be of such draught and built in such a way that they will be able to enter any harbor in the United States where there is over twelve feet of water upon the bar...to be so protected as to be able, without injury, to run past any forts or defenses of any such harbors...¹⁸¹ Any interference in the contracting of these Departmental designs, Sedgwick, argued, “utterly embarrassed [the Department’s] plan of overthrowing this rebellion and seizing the cities in the southern States by means of these armed vessels.”

But the Bureau design also had inherent drawbacks. Although Navy Yards and existing private contractors might be relied upon to produce engines, boilers and hulls, the armour plates themselves were to be in solid 4½-inch thicknesses, “very large, of the best quality hammered iron, and so bent as to fit the model of a vessel.” Since such plates could not be currently manufactured in America extensively or quickly, they would have to be procured in England or France.¹⁹¹ All this was fraught with added expense, delay, and political complications—especially at the height of the serious crisis over the *Trent*.

By January 8th, 1862, John Griswold wrote to Ericsson that their business partner John F. Winslow had returned from Washington, after a “thorough & very satisfactory interview with Secretaries Welles & Seward; also with the Pres. & Asst. Fox.” The issue, of course, was which pattern the new fleet of armoured gunboats would take. Lenthall and Isherwood’s enjoyed the obvious ‘inside track’ with their scheme for Coles-type turret ironclads which nonetheless exposed more of the broadside to penetrating shot and required so much armour plate in thicknesses no one in the North was ready to produce in time. But inasmuch as the Navy professionals asserted their own design would best match the complex strategic needs of the country, the New York contractors already had a rival prototype nearing completion. Ericsson’s *Monitor* had finally managed to gain the respect of Commodore Smith, and was fast becoming a technological icon for young, ambitious engineers like Alban Stimers. “We can have things our own way,” Griswold

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related to Ericsson, but only “if the Battery proves Equal to our expectation”. The Government, while in a desperate hurry to obtain ironclads, was nonetheless willing to wait; “nothing, to any extent, will be contracted for till she has been tested.”^[20]

According to James P. Baxter, the status of the Bureau’s ironclad proposal was by then already uncertain. This was because one man in particular, Fox, was by then uncertain of the effectiveness of the Bureau’s design against Ericsson’s. When Ericsson and his associates learned of this ambitious move on the part of the Navy, they moved quickly to question the expediency of Fox’s plan. On Dec 23rd, Ericsson wrote to Welles offering to build six improved batteries, noting that Coles’s turrets were vulnerable in construction compared to his. Wood backing for side armour was one thing; but curved, necessarily shorter pieces of wood backing in a turret wall was another. He also doubted their ability to withstand the shock of impact when “cogs or rack work of case iron” for rotation were applied directly to the inner turret wall, and therefore liable to derangement. Furthermore, while the Bureau turret vessels would only carry a single 11-inch gun in each of their two towers, his improved batteries would concentrate the fire of two *15-inch* guns in a single turret firing directly forward. Again, such a system would, he promised, “enable us to bid defiance to any war ship afloat”, and this at least addressed some of the Union’s more pressing concerns at the time.^[21]

Concurrently, again, time, if not technical certainty, favoured the construction of Ericsson’s monitor-ironclads. Fox was soliciting the advice of experts in preparation for a naval attack—and capture—of the New Orleans, the Confederacy’s largest port-city. To pass Forts Jackson and St. Philip, Major General and Chief Engineer George Barnard specified in a special memorandum on the subject for Fox, would require iron-clad batteries. These should be armed with as many 11-inch guns as possible, firing canister on the forts’ waterfront and barbette batteries—suppressing Confederate fire while the rest of the squadron ran the gauntlet up the Mississippi River. What form the batteries themselves should take was not so important as *when they could be available*. As

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Barnard concluded, no delay should be made in preparation.^[22] This warning would take on powerful meaning a year later, when Fox was planning another great Union naval strike—against Charleston.

Thus, on the 3rd of February, 1862, John Hale, the Chairman of the Senate Naval Committee, was obliged to ask the Navy Department what exactly its plans for an ironclad flotilla were; purpose and form.^[23] Welles's reply of February 7, 1862, was, at this juncture, absolutely critical. The Department of the Navy could "probably build ten or twelve iron-clad gunboats in the next six months, and probably three times that number within a year." The specific design of these gunboats was not firmly decided, but the Department would "avail itself of the experience which will be gained in the construction of those now going forward, one of which will be soon tested in actual conflict." This was unmistakably the *Monitor*. Ericsson's proposal was even mentioned by name; and the "10 vessels" are in fact his own—the future *Passaic*-class; six to be completed (it was then hoped) within six months.^[24] As an added incentive, the price tag of the added appropriation had dropped to \$10 million. The Bureau turret ship scheme had thus already lost its 'inside' advantage. This was due more to its own inherent design drawbacks, rather than the so-called "political" influence of Ericsson and his financial backers. Facts spoke louder than words at the time; if the Bureau turret ships *could* have been produced as cheaply, easily and quickly as Ericsson's monitor-ironclads they *might* have stood a better chance with the primary decision-makers involved, namely Fox and Welles, and probably to some extent, Abraham Lincoln himself. The actual tactical superiority of the monitor design over the Fox-Lenthall scheme was another matter. Issues of laminated armour vs. solid plate (and rolled iron over hammered), Coles 'cupolas' or Ericsson 'towers', two turrets with one gun or one turret with two, and low freeboard vs. freeboard even lower were all largely debatable. They remain so today. But laminated 1-inch plating, bent into turrets, could be had; rolled 4½-inch plates could not. A working model of an Ericsson turret vessel at least existed in 1862 for testing and improvement; Coles's prototype vessel was still years away from

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completion. Ericsson's arguments for maximum concentration of weight, armour protection and firepower *were* better realized in the single turret of even thicker armour protection and ever greater guns than multiple turrets weakly protecting weaker armaments by comparison. Higher freeboard, at the same time, meant more area to be plated—or less area protected at all. Given the fact that the Bureau turret ships were not intended for cruising purposes, any arguments for partial protection lost their meaning, while a monitor's freeboard capitalised on even greater economy of national resources needed for its construction *and* consolidation of defensive force.

There were at least two important features of Welles's response to Hale; the Navy's response to the Senate; and the Administration's response to Congress. First, the *Monitor* had all but established itself as the prototype coastal defence ironclad of the Civil War at least a month *before* the Battle of Hampton Roads, not as a result of its famous duel with the C.S.S. *Virginia*. Recurring arguments that "Monitor Mania" as a result of the events of March 8-9, 1862 somehow 'blinded' Assistant Secretary Fox and the Navy Department as a whole neglect this fact. To be sure, the enormous and unprecedented national excitement and enthusiasm for Ericsson's strikingly 'futuristic' warships did wonders for the Navy's public relations, and gave the White House an ever-welcome boost of support. If the Navy had half-committed itself to monitors before Hampton Roads—for that matter, was there really another 'half'?—it was certainly bound to them afterwards. But any efforts made by the "powerful Ericsson Lobby" or "clique" were far from conspiratorial in nature. They were wide open to professional scrutiny. Indeed, it was Ericsson's near-invincibility on technical issues which all but guaranteed him an advantage over many rival designs for ironclads submitted to the Navy throughout the American Civil War. As Hale later commented to Congress, "these boats are considered by the Department, and by practical men who have the best means of judging, as the very best, and in fact the only means of coast defense that is now known to the military science."¹²⁵¹

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Secondly, to Hale's inquiry of the *purpose* of the (monitor) ironclad gunboats proposed by the Navy, Welles stated they were "to reduce all the fortified sea ports of the enemy and open their harbors to the Union Army." Examined closely, this was a significant caveat not mentioned by Ericsson. The 1856 proposal to Napoleon III was intended to attack ships, bypassing forts. When naming his ironclad the "*Monitor*", Ericsson specified Confederate defences to be 'run through', not reduced. Yet when Hale recommended Ericsson's "boats" to Congress, he too added that "stone forts can be battered down by these batteries."²⁶

In fact, Welles's reply bears the hallmark influence of Fox, whose own thinking retained the original concept, repeated in Congress, that the gunboats were to take Confederate strongholds from the sea—not Grimes's assertion that they were to solve the nation's coastal defence problems in the face of foreign—particularly British—naval intervention. This contradiction between coastal assault and coastal defence, between attacking the Confederacy and defending against the British Empire would manifest itself more clearly as soon as the *Passaic*-class monitors saw action, a year later. Furthermore, their obvious failure to reduce forts—at least without direct support from the Army—would outweigh their intrinsically less-obvious success in deterring foreign intervention, though they could—and would—overcome any ironclad the Confederacy could produce. Nevertheless, it would be much easier for political opponents of Lincoln's republican administration to point to blatant battlefield defeats, or at least "repulses", than subtle diplomatic victories.

At any rate, the Union's naval resources were perpetually split between the need to maintain its command of the sea, or at least the protection of its commerce worldwide, and strike at the Confederacy. On the eve of the Battle of Hampton Roads, Fox apologized to Flag-Officer Louis M. Goldsborough, commanding the North Atlantic Blockading Squadron, for the short supply of the new double-ender wooden gunboats. "I presume you are aware that we are about to undertake the biggest job of the war," he

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wrote, referring to the forthcoming operation against New Orleans, “and that we are straining every nerve to concentrate a force to accomplish it successfully; this is why we have no boats.” Meanwhile, the Confederate commerce raiders *Nashville* and *Sumter* were having their own way against Northern shipping, “when we ought to have a dozen boats after them.” Nevertheless, the Navy was “immensely popular and will remain so if we continue successful,” Fox concluded.^[27] In addition to Goldsborough’s victories off the North Carolina coast, Forts Henry and Donelson had fallen in the West, thanks to the combined operations of Union land forces under General Ulysses S. Grant and Commodore Foote’s partially armoured casemate-gunboats. All this said nothing for any Confederate naval initiative, however. On the 21st of February, Captain John Marston of the steam frigate *Roanoke*—lying at Hampton Roads with her engine disabled and a crew short of 180 men—related to Welles the disturbing local intelligence that “the *Merrimack* will positively attack Newport News within five days...^[28]

I have briefly sketched how Union naval strategy from the beginning of the Civil War to the almost legendary Battle of Hampton Roads nearly a year later had become dependent in many ways upon the input of John Ericsson, in the form of monitor-ironclads. These were vessels fashioned to counter other vessels, running gauntlets if need be, and in this capacity they remained largely unchallenged throughout the course of the Civil War. However, from the beginning also there were obvious conflicting aspects of Union naval strategy which a single ship design could not possibly hope to resolve. This was at the root of the important but often overlooked distinction between coastal defence—against enemy warships—and coastal assault—against enemy fortifications, primarily. Geography and human psychology each played their part. Monitors might have run the gauntlet below New Orleans and compelled the isolated city to surrender as easily, if not *more* easily, than Admiral Farragut’s wooden men-of-war. A case in point was the Battle of Mobile Bay (August 5, 1864), where 3 out of 4 monitors ran under the guns of Fort Morgan (the lead monitor struck a mine and quickly sank with heavy loss of life) into the wide inner bay, and then brought 15-inch guns against the best ironclad of

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the South, the C.S.S. *Tennessee*, which surrendered shortly afterwards. The April 7th assault on Charleston, a year after New Orleans and the year before Mobile, was a different matter. One gauntlet of fire led immediately into another. Even if the monitors could reach the inner city, they would find themselves more isolated, and under fire, than their target. The addition of treacherous obstructions and torpedo-minefields in the narrow channel completed the trap. Systematically reducing Charleston's lines of defenses, one by one, then proved a task for which the monitors were expressly not well-suited for. Yet if the overall strategic isolation of the South, the maintenance and protection of the blockade, was more strictly adhered to, the U.S. Navy during the Civil War would have enjoyed its own quiet success free from the embarrassment and political turmoil which followed the ironclad repulse at Charleston. Perhaps it was the uncertain, often desperate quality of the war itself which frequently demanded louder, more direct action than naval blockades would admit. There was, no doubt, a strategic soundness as well to Fox's preference for a series of hammer blows to Confederate ports, one after the other, each sensational victory a boost to Northern morale, a warning to foreign powers, and a practical relief for Union naval forces otherwise tied up in tedious and expensive blockade-duty. Vessels freed from these roles could be sent off to hunt Confederate commerce raiders or more freely assist the Army in combined operations. The war might be brought to a close more quickly.

Yet combined operations worked two ways; and perhaps Fox's grand naval strategy did not exactly meet the Union Army's, which would have to supply substantial garrisons on every captured point on the coast, weakening its ability to strike elsewhere, overland. Instead, the Union Navy was bound to play a secondary role in the course of American history, a holding action backed by its sentinels of the coast, its monitors, while the Army advanced—and retreated—and advanced yet again (and again), until finally victorious. Small wonder, then, that the naval side of this great conflict (at least) always seems to receive such comparatively little attention, even as the role of its ships and the men behind them are all-too often taken out of context, misinterpreted and

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unappreciated. Here and today, hopefully, is an exception.

^[1] 11-2-1861, Dahlgren to Grimes; 19-1-1861, Dahlgren to Morse, Dahlgren Papers, Library of Congress, Manuscript Division, Washington, D.C. (hereafter "L.O.C."). See also Donald L. Canney, *The Old Steam Navy, Volume Two: The Ironclads, 1842-1885* (Annapolis, Maryland: Naval Institute Press, 1993), 7.

^[2] 11-2-1861, Dahlgren to Grimes; 20-2-1861, Dahlgren to McKay, Dahlgren Papers, L.O.C.

^[3] Quoted from Baxter, *Introduction*, 242.

^[4] *Blackwood's Edinburgh Magazine*, No. DXLV, VOL. LXXXIX (March, 1861), "Iron-Clad Ships of War, and Our Defences", 311; 316.

^[5] *Scientific American*, vol. 4, no. 2 (January 12, 1860), "New War Steamers", 25.

^[6] See John Ericsson, *Contributions to the Centennial Exhibition* (New York: The Nation Press, 1876), 410-16. Ericsson describes the ironclad's main armament, however, more as "hydrostatic javelins" which would be apparently fired from below the waterline, though "One tube of this description" was to be "placed on a level on the platform of the revolving turret."

^[7] 29-8-1861, Ericsson to Lincoln, Ericsson Papers, American Swedish Historical Society, Philadelphia, PA.

^[8] Lincoln declared a blockade on April 19, 1861 and modified it to cover Virginia and North Carolina on April 27.

^[9] 10-5-1861, Stephen R. Mallory to C. M. Conrad (Chairman of the Committee on Naval Affairs), *Official Records of the Union and Confederate Navies in the War of the Rebellion*, 30 vols., (hereafter, "O.R.N."), Series 2, Vol. 2, 67-9. James P. Baxter notes two separate dates for this often-quoted letter, one of May 8 and the other of May 10, *Introduction of the Ironclad Warship* (Cambridge: Harvard University Press, 1933), 224-5, ff. 4.

^[10] James Tertius DeKay, *Monitor: The Story of the Legendary Civil War Ironclad and the Man Whose Invention Changed the Course of History* (Pimlico, London: Random House, 1999), 73.

^[11] John Niven, *Gideon Welles: Lincoln's Secretary of the Navy* (Baton Rouge: Louisiana State University Press, 1973), 368.

^[12] 16-11-1861, Ericsson to Smith; 18-11-1861, Smith to Ericsson; and 20-11-1861, Ericsson to Smith, R.G. 45, Entry 464.

^[13] *Scientific American*, vol. 5, no. 20 (Saturday 16, 1861), "British and American Iron-Clad Ships of War", 313. The "five" ironclads noted, but still unnamed, were the *Monitor*, *Galena*, *New Ironsides*, the perpetually incomplete Stevens Battery, and the recently contracted *E. A. Stevens*, or converted Coast Guard steamer *Naugatuck*. See Canney, *The Ironclads*, 73-4, on the *Naugatuck*.

^[14] *Blackwood's Edinburgh Magazine*, vol. XCI, no. DLVI (February, 1862), "The Defence of Canada", 228.

^[15] 11-11-1861, Smith to Ericsson, Ericsson Papers, L.O.C.[?]

^[16] See Baxter, *Introduction*, 275-6.

^[17] *Congressional Globe*, 19-12-1861, "Ironclad Steamers", 147.

^[18] *Congressional Globe*, 17-12-1861, 123.

^[19] *Congressional Globe*, 19-12-1861, "Ironclad Steamers", 148. Bending thicker armour plates was itself problematic. Heating them for the purpose was a more labour intensive, time-consuming and expensive process, while 'cold-bending' them with special heavy presses, according to tests conducted by the Iron Plate Committee, tended to damage the weld of the plates themselves and weaken their resisting powers.

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On January 21, 1861 Samuel Pook wrote to Commodore Smith that the armouring of the *Galena* was “now going on more rapidly than it has at any time before...principally because the bars are now all bent and twisted by a wooden lever, instead of being heated and bent, as was first deemed necessary.” The *Monitor*'s 1-inch laminated iron plates could also be cold-bent and their more concentrated welds were perhaps individually less subject to strain. For a description of the armour-plate press for the monitors see *Harper's Weekly*...For a description of a British press see the *I.L.N.*...Also Baxter...and Canney... A description of armour-plate manufacture at the Continental Iron Works of Thomas F. Rowland, however, given by *Scientific American*, suggested the turret plates of the *Passaic*-class monitors at least were heated and then bent; 8-11-1862, vol. 7, no. 19, “A Visit to Our Workshops—The Continental Iron Works”, 298.

^[20] 8-1-1862, Griswold to Ericsson, Ericsson Papers, PA.

^[21] See Baxter, *Introduction*, 358-60.

^[22] 28-1-1862, Barnard to Fox, Fox Papers.

^[23] Reprinted, with Welles reply in *Congressional Globe*, 8-2-1862.

^[24] ‘This would be the *Passaic*-class monitors’, the ‘backbone of the war’.

^[25] 8-2-1862, *Congressional Globe*.

^[26] 8-2-1862, *Congressional Globe*.

^[27] 1-3-1862, Fox to Goldsborough, *O.R.N.*, series 1, vol. 6, 624.

^[28] 21-2-1862, Marston to Welles, R.G. 45, Entry 15.