

Patterns of Procurement and Politics: Building Ships in the Civil War

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Cet article examine la naissance et le développement d'un tout jeune complexe autant industriel que militaire et politique pendant la guerre de sécession. Ce petit complexe a été impliqué dans la production de trois navires pour la marine des Etats-Unis pendant les premiers mois de la guerre, y compris deux des trois premiers cuirassés, l'U.S.S. Galena et l'U.S.S. Monitor.

During the U.S. Civil War, the American navy expanded and improved significantly. Pre-war shortages of ships, advances in naval technology, and losses of existing vessels forced the federal government to purchase and build hundreds of ships between 1861 and 1864. This paper examines construction in 1861-62 of three vessels, including two of the earliest “ironclads,” which foreshadowed patterns of military procurement that crystallized during the war and still exist today.

The incorporation of new naval technology, which culminated in March 1862 in the “Battle of the Ironclads,” was especially trying. The navy had few engineers who could design experimental craft. Even if they could overcome technical difficulties and the risk of failure and potential loss of a career, government-owned navy yards could not build such vessels. With the need for rapid construction of ironclad vessels, the navy had to contract the work out to private industrial yards, itself a relatively new and problematic process. An insightful example into this political-industrial side of naval construction during the Civil War can be found in a study of the construction of the ironclads U.S.S. *Galena* and U.S.S. *Monitor* and the more conventional gunboat, the U.S.S. *Owasco*. Although very different in design, these three vessels were related by having overlapping designers, builders, and/or financial backers, and all of these construction projects were also aided in major ways by the drive and cunning of New Haven businessman Cornelius Scranton Bushnell. Yet it was the Navy’s necessity to build up the fleet quickly that gave Bushnell and others like him the opportunity they needed.

Owasco

Within seven days of the 12 April 1861 attack on Fort Sumter, President Abraham Lincoln had ordered a blockade of southern ports between South Carolina and northern Texas, and eight days later, he extended it to include North Carolina and all of Texas.¹ Eventually, he would expand the effort to cover the 3,500 miles of coast between

1 William H. Fowler, Jr, *Under Two Flags* (New York: W.W. Norton & Company, 1990), 47.

Virginia and Texas, much of which paralleled inland waterways and contained numerous harbours and rivers. For enforcement, the navy had only 42 commissioned vessels, 12 of them in the home squadron. Most important, it had no shallow-draft gunboats to patrol the many shallow inlets and rivers.²

Luckily, the navy had plans to build operational gunboats and a civilian ironworks with experience at making them. A few months before the war, the navy's engineer-in-chief, Benjamin Franklin Isherwood, had made plans for and overseen construction of two such vessels for the Russian government. With a few modifications, these plans became the basis for the U.S. Navy's *Unadilla*-class gunboat.³

In June 1861, the navy began to accept bids from shipyards and ironworks for building the *Unadillas*.⁴ Construction sites were all over the country, with hull contracts being awarded in seven states. Although this diffuse method was not as efficient as using one dedicated naval yard, it shared wealth, especially important when the war was hurting Northern industrial and shipping interests. Further, politicians could point to local hirings to show they were representing their constituents in a difficult time.

The federal government awarded three of the *Unadilla* hull contracts in Connecticut, scattering them among its shipyard communities, with one for Mystic. Eventually the ten-year-old Charles Mallory & Sons Shipyard would build the hull of the *Owasco*.⁵ Charles Mallory, the yard's principal, was a highly capable, self-made man, with an impeccable reputation, banking interests, and his own shipping line. However, the firm's real expertise was in medium-sized clippers, making a steam-powered gunboat an unlikely project.⁶ It had built only three steamers – in 1859 the profitable *Penguin*, for the Providence Commercial Steamboat Company, and in 1861 the *Varuna* (1,003 tons) for its own use and the *Stars and Stripes* (410 tons) for the New Haven Propeller Company.⁷

The president of New Haven Propeller was Cornelius Scranton Bushnell, a grocer, president of the New Haven & New London Railroad, and an old yachting friend of Charles Mallory's oldest son and business manager, Charles Henry. The son of a Connecticut farmer, Bushnell had multiple occupations before taking an interest in the financially troubled railroad in 1858. The company needed to continue its line to Stonington, Connecticut, in order to become profitable; Bushnell became president in 1858 and began acquiring deeds for rights-of-way to complete the corridor. In April 1858 he obtained the right-of-way through property of the Maxson, Fish & Co., shipyard near

2 Edward William Sloan III, *Benjamin Franklin Isherwood: Naval Engineer* (Annapolis: United States Naval Institute, 1965), 27, 30.

3 Ibid., 30. These vessels were known also as "90-day" gunboats.

4 James P. Baughman, *The Mallorys of Mystic* (Middletown, Conn.: Wesleyan University Press, 1972), 61.

5 Ibid., 112.

6 William N Peterson, *Mystic Built* (Mystic, Conn.: Mystic Seaport Museum, 1989), 47.

7 Carl C. Cutler, "The Mallorys of Mystic," unpublished ms. in the G.W. Blunt White Library, Mystic Seaport Museum, Mystic, Conn., collection 5, box 11, 128–9.

Mystic. In return, it allowed the yard to build and operate the local station on its property.⁸

To acquire iron track for the Shore Line railroad, Bushnell contracted out with the Corning, Winslow and Company ironworks (or the Albany Ironworks) of Troy, New York, where Erastus Corning and John F. Winslow were principals, and with John Augustus Griswold's Albany and Rensselaer Iron and Steel Works (or the Rensselaer Ironworks). These connections would serve him well.

When the track was operational, the Shore Line faced other difficulties. The competing New York & New Haven Railroad Company refused to sell through tickets or check baggage for the New Haven & New London, and the U.S. Post Office would not use the new line. Bushnell employed legal means and lobbying in Washington to overcome these challenges.⁹

We do not know whether Bushnell's New Haven Propeller Company was a subsidiary of the railroad or a separate enterprise that he set up. Regardless, he and the firm purchased the *Stars and Stripes* from the Mallorys for \$36,000 in the spring of 1861. Adding a reported \$4,000 in fittings and supplies, the company then leased her to a desperate federal government for \$10,000 for the first month and \$9,000 for the second, after which Washington bought her for \$55,000.¹⁰ No doubt these transactions showed the Mallorys that they could make money from government work. Though new to steamers, the Mallorys knew that times were changing. Greater risk in wartime hurt their shipping line and merchant ventures, so they concentrated on building steamers, especially under government contract.¹¹

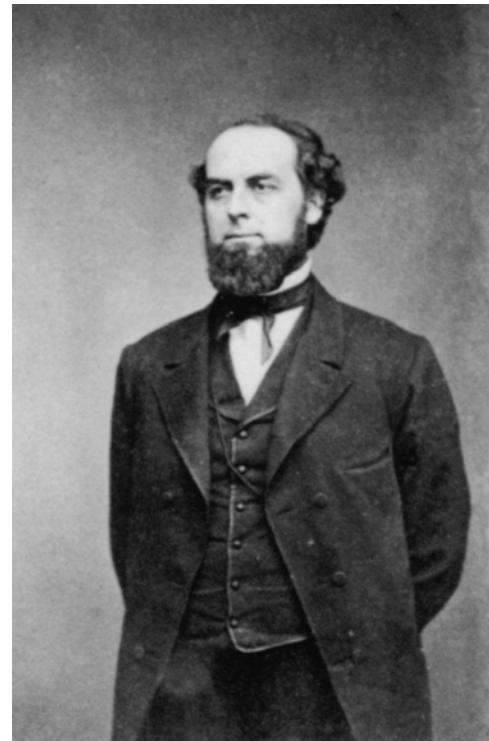


Figure 1. Cornelius Scranton Bushnell, president of the New Haven Propeller Co., was an active middleman in the procurement of ships for the U.S. government. Courtesy Connecticut State Library, Hartford

⁸ A Modern History of New Haven and Eastern New Haven County, Vol. II (New York: S.J. Clarke Publishing Company, 1918), 5, and Diary of William Ellery Maxson, 23 April 1858, White Library, collection 166, vol. 2.

⁹ History of New Haven, 5.

¹⁰ Testimony of Cornelius S. Bushnell, "Government Contracts," 37th Cong., 2nd Sess., House Reports, No. 2 (2 vols., Serial 1142), I, 673. John Niven, *Connecticut for the Union* (New Haven, Conn.: Yale University Press, 1965), 392. The New Haven Propeller Company had to assume operational costs during the leasing of the *Stars and Stripes*, hence the \$4,000 discrepancy.

¹¹ Baughman, *Mallorys*, 106.

On 13 June, Charles Henry Mallory was in Washington attempting to procure Mystic's *Unadilla* contract with two bids, one at \$47,500 and one at \$50,000.¹² Bushnell was also in the capital, as was his Captain Nathan G. Fish, who three days earlier had met with William Ellery Maxson and agreed that they would bid \$53,000 for the contract.¹³

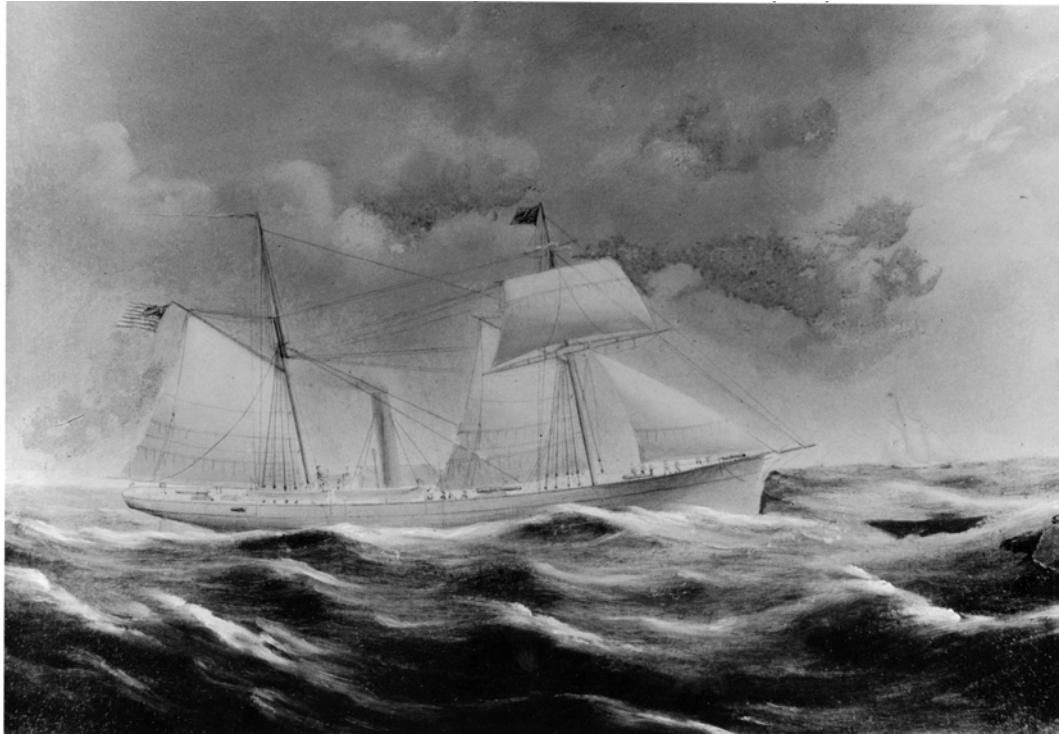


Figure 2. USS *Owasco*, built at the Charles Mallory & Sons Shipyard, Mystic, Connecticut. ©Mystic Seaport Collection, Mystic, CT, #45.351

Naturally, it would seem likely that Mallory shipyard would obtain the job at \$47,500. On 24 June, back in Mystic, Fish received word that Washington had accepted his bid of \$53,000. On that same day he wrote in his diary, "Bushnell came + insists that the Contracts [sic] be given to Mallory."¹⁴ The next day, "Mr. Mallory [presumably Charles Henry] called and talked on the Gunboats."¹⁵ On 26 June, the Mallorys began construction of the *Owasco* for a subcontract worth \$50,000.

12 Testimony of Charles Mallory, "Government Contracts," 37th Cong., 2nd Sess., *House Reports*, No. 2 (2 vols., Serial 1143), II, 1511.

13 Diary of Nathan G. Fish, 10 and 13 June 1861, White Library, collection 252, box 1, vol. 5.

14 Ibid., 24 June 1861.

15 Ibid., 25 June 1861.

Shipyards in Mystic often subcontracted to each other but only when one had too much work. During the summer of 1861, the Mallorys had obtained contracts for and completed at least three other steamers,¹⁶ while the local paper listed Maxson, Fish & Company as doing only repair work.¹⁷

This suspicious subcontracting was only one of many questionable practices regarding the federal government's procurement of war materials throughout the North. Starting in the autumn of 1861 Congress became curious and held an investigation of government procurement practices. Although starting with the army, Congress eventually turned its investigation towards the navy's procurement of ships. Among other vessels it investigated, Congress examined the details behind the construction of the *Owasco*. and called several participants to New York for questioning.

In his testimony, given in April 1862, Charles Mallory made two suggestions regarding the subcontracting of the *Owasco*. First, he stated that he understood the navy rejected bids that were too high or too low and dispersed contracts among the average prices. Second, Mr. Mallory proposed that Captain Fish's contacts in Washington may have helped his cause. Regardless of these possible reasons, Mr. Mallory concluded: "I do not know why; I had no hand in obtaining the bid."¹⁸

This was probably true. As we saw above, Mallory's eldest son, Charles Henry, had visited Washington to place the bids. But why did the navy accept Fish's higher bid? The answer lies in William Maxson's diary:

We received a letter from Washington awarding us a Gun Boat at \$53,000, we telegraphed exceptance [sic] and wrote. We get it being obligated to transfer the contract to Mr. Mallory his having (proposals) been withdrawn being lower than ours so to get a higher price it being determined that there was to be but one built in Mystic, we receive for our bid \$1500. We are requested to give a price for building another class of Gun Boat to be plated and shot proof got up by Mr. Bushnell of New Haven and another man. We feel rather bad to have to give up the contract.¹⁹

It would seem that Bushnell, Mallory, and Fish met to compare bids, probably in Washington on the night of 13 June. Since they knew that only one gunboat project would, and must, go to Mystic, an opportunity presented itself. Mallory withdrew his lower bids, sacrificing the job to his higher-priced competitor, which would now subcontract the work to the Mallorys at the higher price. Charles Mallory & Sons received the contract for \$50,000, and the remaining \$3,000 should have gone to Maxson, Fish & Company. However, as Maxson's diary shows, his yard received only \$1,500, leaving another \$1,500 unaccounted for.

16 *Mystic Pioneer*, 20 July, 31 Aug., and 7 Sept. 1861.

17 Ibid., 24 Aug. 1861.

18 Mallory testimony, *House Reports*, 1511.

19 Diary of William Ellery Maxson, 24 June 1861, White Library, collection 166, box 1, vol. 5.

Bushnell seems always to have sought compensation for his actions. With his political contacts in Connecticut and Washington, such as Governor William A. Buckingham and Secretary of the Navy Gideon Welles, he may well have directed one of the state's gunboat contracts to the Mystic area. Bushnell probably proposed to Mallory and Fish that they withdraw their lower bids so that local residents received as much money as possible. For his help, he may well have asked for \$1,500 and then presented the arrangement to Maxson and Fish, contending that without his help they would have received nothing. However, this business arrangement may not have been enough to entice Maxson and Fish or to gain Bushnell \$1,500. Bushnell needed to offer them something of greater value.²⁰

Galena and Monitor

During that same June (1861), as we saw in Maxson's diary, Bushnell had asked some Mystic shipbuilders to estimate the costs of an ironclad warship. The Mallorys were too busy,²¹ but Bushnell continued to seek engineering advice and found it, reportedly in late July when he met naval constructor Samuel Hartt Pook on the navy's pre-purchase inspection of the *Stars and Stripes*. Bushnell engaged Pook in the designing of an ironclad and Pook's plans, models, and engineering experience cost Bushnell \$1,500.²²

Bushnell's meeting with Pook in July, for the purpose of drawing up plans for the ironclad, is suspect. Although the navy did buy the *Stars and Stripes* from Bushnell on 27 July, and Pook was the navy's agent for the transaction, it seems unlikely that from this chance meeting Bushnell sought out Pook's expertise. As stated above in Maxson's 24 June diary entry, the Maxson & Fish yard had already been approached to give a price on construction of an ironclad. It would therefore seem likely that the plans had already been drawn up. Further, in New Haven on the 28th of June, Bushnell had hand-written a detailed, seven-page description of his version of an ironclad, a document that refers to accompanying drawings.²³ Therefore, it is probable that Pook had designed the vessel sometime in June 1861.

The timing of Bushnell's plans for the *Galena*'s construction is made even more interesting in that the bill for the appropriation of funds for ironclads was not introduced into the Senate until 19 July 1861.²⁴ In the spring of 1861 the North knew that the Confederates were constructing at least one ironclad. Secretary of the Navy Gideon

20 The *Owasco* saw service in the Mississippi river during the bombardment of Confederate defences below New Orleans and at Vicksburg. She assisted in the capture of Galveston, Texas, and blockade duty in the Gulf of Mexico. She was sold out of the U.S. navy in 1866.

21 Baughman, *Mallorys*, 111; Mallory testimony, *House Reports*, 1511.

22 Bushnell testimony, *House Reports*, 676.

23 "Specifications for Bomb proof Steam Power Gunboat as Proposed by Cornelius S. Bushnell & Co." 28 June 1861, The New-York Historical Society M/M, Bushnell, Cornelius Letters, Accts, Specification for Steamers, 1860-2.

24 37th Cong., 1st session., Bill S-36, "A Bill to Provide for the construction of one or more armored ships and floating batteries and for other purposes,"

Welles had explained the navy's need for ironclads to Congress in an attempt to counter this Confederate threat, but seems to have met with a cool reception due to political infighting. According to one account, Welles remembered Bushnell's success in lobbying Congress to have the post office use his railroad and asked him to help push through an ironclad appropriation bill. Bushnell stated that with the aid of Connecticut's congressman James E. English, then a member of the House's Naval Committee, the bill passed.²⁷

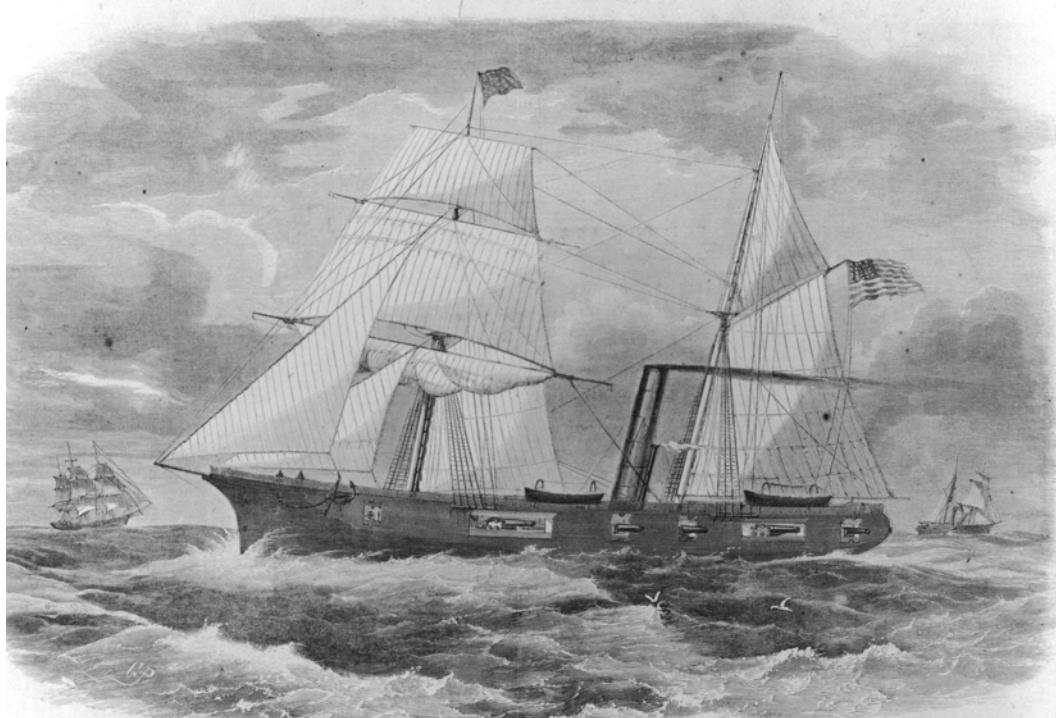


Figure 3. USS *Galena*, from Mystic's Maxson, Fish, & Co. Shipyard, was one of the first three contracted U.S. ironclads. ©Mystic Seaport Collection, Mystic, CT, #39.171

Exactly what English's role was we do not know. On 19 July 1861, Senator James W. Grimes, a Republican from Iowa, introduced "A Bill to provide for the construction of one or more armored ships and floating batteries, and for other purposes" (S-36) into the Senate.²⁵ Abraham Lincoln signed the bill into law on 2 August. With the bill now law, on 4 August the navy department invited bids for construction of ironclads; parties must notify the navy before 15 August and submit proposals within 25 days – by 29 August. On 8 August Welles appointed Commodores Joseph Smith and Hiram Paulding and Commander Charles H. Davis to sit on a naval review board to examine plans.²⁶

25 *Congressional Globe*, 37th Cong., 1st Sess., 205.

26 *Report of the Secretary of the Navy in Relation to Armored Vessels* (Washington, DC:

With plans for the *Galena* in hand and the navy's approval pending, Bushnell needed a yard. On 19 August, he called on Maxson to drop off the plans and ask for a revised estimate. The following day he returned and made a conditional contract. Two days later, building commenced.²⁷ Thus construction of the *Galena*'s keel, ribs, and wooden hull began before the board had endorsed the project.

No evidence suggests that Bushnell entertained other bids. Fish had written in his diary on 25 June that he talked to one of the Mallorys regarding the "gunboats," and Maxson had entered in his diary on 24 June that Bushnell had asked his yard about the price of building a "shot proof" gunboat. Hence all parties seemed to know that Maxson, Fish & Company would build the *Galena*. Since the dollar amount missing from this yard's share of the *Owasco* contract equals the costs of the *Galena*'s plans, it seems that Bushnell *invested* this money for the yard to guarantee the ironclad's more lucrative contract.

For the vessel's armour, Bushnell again turned to Corning, Winslow and Company and Griswold's Rensselaer Iron Works. John Winslow designed interlocking armour, in which one piece would cover and protect the weak and vulnerable rivets of the adjoining piece.

Although Bushnell seemed intent on building his ironclad as soon as possible, he was not reckless with his money. He did not enter into contract for the armour with Winslow and Griswold until 17 October, about one month after he learned of the navy's contract, and Winslow's first sketch of the armour design was made in mid-November.²⁸ If Bushnell did not receive a contract, he would still have a vessel to sell or lease to the government, similar to his experience with the *Stars and Stripes*.

Erastus Corning, however, sat in the House, and government contracts would forbid any Congressman from participating.²⁹ The contractors therefore deliberately omitted his name from all the documents, but a few letters kept him abreast of developments, and his partner, Winslow, referred to the vessels to him as "our plans," "our price," and "our share" of the contracts.³⁰

We do not know how much the review board informed the potential contractors about its internal discussions, but Bushnell clearly had some detailed knowledge. For

Government Printing Office, 1864), 1–2.

27 Maxson Diary, 19, 20, and 22 Aug. 1861. The 24 August issue of the weekly *Mystic Pioneer* did not mention construction of the *Galena*, probably because it may have set the type before 22 August.

28 Contract for Iron Armor on Gun Boat between Messrs. Winslow & Griswold and C.S. Bushnell & Co., 17 Oct. 1861, Specification for Steamers, 1860-2, and Augustus Griswold to John F. Winslow, 19 Nov. 1861, Library at the Mariner's Museum, The U.S.S. *Monitor* Design and Construction Collection, MS335, box 1, file 10.

29 Contract for construction of USS *Monitor* between Gideon Welles, representing the US Navy, and John Ericsson, John F. Winslow, and John A. Griswold, 4 Oct. 1861, Library at the Mariner's Museum, Thomas F. Rowland Collection, MS376, box 1, file 4. For the evolution of naval contracts with civil contractors, see Kurt Hackemer, *The U.S. Navy and the Origins of the Military-Industrial Complex, 1847–1883* (Annapolis, Md: Naval Institute Press, 2001).

30 John Flack Winslow to Erastus Corning, 3 Sept. 1861, New York State Library, Manuscripts, Call Number 13785.

example, on 16 September the board finally recommended a contract if and only if Bushnell could prove that his vessel would be seaworthy with the added weight of the armour.³¹ Bushnell had already learned of this concern and had addressed it. Cornelius H. Delamater, owner of New York's Delamater Iron Works, had put him in touch with Delamater's old friend John Ericsson, a celebrated marine engineer.

On 10 September Bushnell had visited Ericsson in New York and dropped off his plans for the *Galena*. Returning the following day for the engineer's report, he learned that his vessel "will prove not only sufficiently stable, but what Sailors term stiff."³² Better yet, the engineer showed him his plans and model of a completely shot-proof vessel, which he initially offered to Napoleon III and that became the USS *Monitor*.

John Ericsson had wrongly received blame for a gun explosion on the USS *Princeton* in 1844 that killed the secretaries of state and the navy; he naturally felt bitter towards the service and had decided not to submit his *Monitor* plans. Bushnell instantly understood the advantages of the low profile and revolving turret and became a champion for the vessel. With Ericsson's consent, he took the plans and cardboard model to Gideon Welles in Hartford on 11 September. Welles told him to take them to the review board immediately. Since it was too late to register and submit proposals, Welles perhaps pressed the board to consider the plans.

Bushnell wrote to Ericsson the evening of his visit to Welles about the secretary's favourable response. He suggested that Ericsson "go down Friday evening, convert the Board Saturday – with the Board meet with Mr. Welles Monday, and have an order made out Tuesday for you to build at least one at \$300,000, the price I named to Mr. Welles."³³ Ericsson, still bitter, declined to go, so Bushnell went without him to Washington. There he showed Ericsson's plans for the *Monitor* to his iron suppliers and partners, Winslow and Griswold. Securing their support, he used Griswold's long-standing friendship with Secretary of State William H. Seward to have the latter give him a letter of introduction to Abraham Lincoln. The plans and model impressed the president, who then accompanied Bushnell to the review board's meeting the following day. The plan seemed to generate mixed reactions until Lincoln reportedly ended the meeting: "All I have to say is what the girl said when she put her foot into the stocking 'It strikes me there is something in it.'"³⁴

Yet the board continued to debate the proposal and was slow to embrace it. Bushnell rushed back to New York to ask Ericsson to accompany him back to meet the board. He told the engineer that all the members were in agreement but had technical questions. In Washington Ericsson's expertise and promise to deliver the ship in 100 days did eventually win unanimous approval for the project.³⁵

31 *Report of the Secretary of the Navy*, 6.

32 John Ericsson to C.S. Bushnell, 11 Sept. 1861, Specification for Steamers, 1860–2.

33 Cornelius S. Bushnell to John Ericsson, 11 Sept. 1861, New-York Historical Society, Ericsson Papers, Reel No. 4.

34 *History of New Haven*, 7. Also in *The Story of the Monitor*, 12–14 and 26.

35 *Story of the Monitor*, 15, and William H. Roberts, *Civil War Ironclads* (Baltimore: Johns Hopkins University Press, 2002), 18.

The navy was hedging its bets by withholding some payments to contractors until it could test vessels. For both the *Galena* and the *Monitor* contractors had to assume the initial costs, and the navy withheld 25 per cent of payments until it was sure the vessels fulfilled expectations. Griswold, Winslow, Bushnell, and possibly Corning financed initial construction, with the navy reimbursing them at different stages. Although the board may have liked the *Monitor's* design, it wanted Ericsson to live up to his 100-day promise, so his vessel could destroy or contain the Confederacy's CSS *Virginia*. Ericsson immediately began acquiring and orchestrating dozens of subcontractors, mostly in New York state. He subcontracted Thomas Fitch Rowland's Continental Ironworks for the hull, Novelty Ironworks for the turret, and Delamater Ironworks for the engines, boilers, and other machinery and parts. Naturally, Griswold's and Winslow's mills filled orders for iron or subcontracted them.³⁶

Ironclads in Action

Both the *Monitor* and the *Galena* soon saw action. The Battle of the Ironclads, involving the former, took place in March 1862. On 8 March, the new CSS *Virginia* entered Hampton Roads, rammed and sank the USS *Cumberland*, grounded and burned the USS *Congress*, and slightly damaged the USS *Minnesota*, which ran aground. The following day she returned to finish off the *Minnesota*, only to find the *Monitor* advancing towards her. For four hours the two ironclads engaged each other, with the *Monitor* ultimately forcing the *Virginia* to disengage, a strategic victory for the North.³⁷ The confrontation seems to have convinced the navy about Ericsson's design. On 14 March 1862, the service paid the final quarter, \$69,750, of the vessel's contracted price.³⁸

On 21 April, the navy commissioned the USS *Galena*, which arrived at station off Fortress Monroe, Virginia, two days later. It was not an uneventful trip, with the engines failing more than once. Flag Officer Louis M. Goldsborough, commanding the Union naval forces in the vicinity of Fortress Monroe, reportedly had a low opinion of this ironclad even before it left New York:

36 Subcontracting became commonplace in naval construction with the introduction of steam power, as a shipyard with experience making wooden hulls usually did not have the capital or expertise to produce engines and boilers. For the *Monitor*, Ericsson subcontracted out much of the work for individual parts so as to finish in 100 days. Subcontracting of components became standard to save time and money. See William N. Still Jr, *Monitor Builders: A Historical Study of the Principal Firms and Individuals Involved in the Construction of the U.S.S. Monitor* (Washington, DC: National Maritime Initiative, Division of History, National Park Service, Department of the Interior, 1988). For more on the development of the navy's relationship with contractors and the contracts themselves, see Hackemer, *U.S. Navy and the Origins*, and Roberts, *Civil War Ironclads*.

37 *Dictionary of American Naval Fighting Ships* (Washington, DC: Naval Historical Division, 1969), Vol. IV, 415.

38 Gideon Welles, "The First Iron-Clad Monitor," Library of Congress, Gideon Welles Collection, box 31, reel 29.

I have visited the ‘Galena.’ She is, in my judgement, [sic] a most miserable contrivance – entirely beneath Naval criticism. The damages to her machinery will, I hope, be repaired at our own shop by to-morrow forenoon; & then, as at present advised, I shall dispatch her to York River.³⁹

Four days later, the new ship was still not in operation. Goldsborough seems to have found other faults:

I am trying to have fitted for the Galena a covering of sheet-iron for all the nuts she exhibits on her sides on the gun-deck. In battle, they would fly off beyond all doubt, & kill the men at her guns, every time a heavy shot would hit her from an enemy. If we cannot cover them all over, & their number is very great, we will at least try to cover all those in the wake of the guns. She is a sad affair. Her projectors & builders ought to be ashamed of her.⁴⁰

Still, with the presence of this ship, the Union forces felt certain of naval supremacy in the area. On the morning of 8 May the *Galena*, along with the gunboats *Port Royal* and *Aroostook*, engaged and silenced an 11-gun Confederate battery at Rock Wharf, and in the afternoon they silenced all but one gun of a 12-gun battery at Mother Tynes’ Bluff. Four days later, after the retreating Confederates destroyed their own *Virginia* to prevent its capture, the ironclads *Monitor* and *Naugatuck* joined the *Galena*’s squadron with orders to proceed up the James River and shell the Confederate capital of Richmond, Virginia.⁴¹

On 15 May 1862, the *Galena* led the squadron towards Richmond. On reaching a bend in the river near Drewry’s Bluff, the ships encountered a blockage. Worse, artillery up on the bluff began to fire on the Union fleet. The Confederates presumably knew the *Monitor* to be impregnable and concentrated fire on the lead ship, the *Galena*. The *Monitor*, unable to elevate her guns to hit the bluff, attempted to draw fire but ultimately had little effect.

Meanwhile the *Galena* had shown a design flaw. Like the *Virginia*, its angled sides would deflect rounds from another ship, but shots from high on the bluff struck the armour nearly at right angles, and apparently 13 of 43 hits penetrated the armour. One report put her casualties at 12 dead, 15 wounded.⁴²

39 Goldsborough to Fox, 24 April 1862, in Robert Means Thompson and Richard Wainwright, eds., *Confidential Correspondence of Gustavus Vasa Fox, Assistant Secretary of the Navy, 1861–1865* (New York: Naval Historical Society, 1920), 263.

40 Goldsborough to Fox, 28 April 1862, *ibid.*, 265. Winslow’s original armour design had changed at least twice during construction, but always with the navy’s permission.

41 *Dictionary of American Naval Fighting Ships* (Washington, DC: Naval Historical Division, 1968), Vol. III, 6–7.

42 *Ibid.*

We demonstrated that she is not shot-proof. Balls come through, and many men were killed with fragments of her own iron. One fairly penetrated just above the water-line, and exploded in the steerage. The greater part of the balls, however, at the water-line, after breaking the iron, struck in the wood. The port side is much injured – knees, planks, and timbers started. No shot penetrated the spar deck, but in three places are large holes – one of them a yard long and about eight inches wide, made by a shot which, in glancing, completely broke through the deck, killing several men with fragments of the deck plating. The *Galena* should be repaired before sending her to sea. I would suggest the Washington navy yard, since so many people there have an interest in iron plating, and she so well shows the effect of various shot. No gun is disabled, but we need ammunition.⁴³

Further reports stated that enemy fire had opened up the seams on the port side and gun deck, started the knees throughout the ship, and injured the wheel.⁴⁴ Even worse, the *Galena* had to disengage herself after depleting her ammunition, giving the victory to the Confederates.

After the *Monitor*'s well-publicized success, the *Galena* now seemed a disappointment. The navy, unhappy with the results and short of cash, delayed settling with Bushnell. Throughout June and July 1862 Bushnell attempted to collect, while his contractors, especially Maxson, Fish & Company, continued to demand final payment from him.⁴⁵

Conclusion: Setting a Pattern

Yet if the *Galena* was slow to bring in contract payments, the *Monitor* had more than made up for the delayed cash flow. Less than a week after Hampton Roads, the navy ordered six new and improved Monitors, later to be called the *Passaic*-class, from Ericsson.⁴⁶ Although the request went directly to Ericsson, the same small group of private contractors financed and filled the orders. Ericsson supplied technical expertise, with probable contributions by Pook and Delamater. Iron and financial backing came from Griswold, Winslow, and perhaps Corning. Griswold in late 1863 also received a seat in the House; he, Bushnell, and again perhaps Corning supplied the political connections. And finally, Bushnell supplied the drive and foresight that held the others together. These factors – technical expertise, financial backing, government contacts, and

43 Report from Cmdr John Rodgers, *Galena*, to Flag-Officer L.M. Goldsborough, Commanding North Atlantic Blockading Squadron, in *Report of the Secretary of the Navy*, 24-5.

44 Report from L.H. Newman [First Officer, USS *Galena*] to Cmdr John Rodgers, 16 May 1862, in *ibid.*, 25.

45 W.L. Barnes, in Washington, to Cornelius Scranton Bushnell, 4, 6, 12, and 17 June 1862 and 7 July 1862, Specification for Steamers, 1860-2. Maxson, Fish & Co. to Cornelius Scranton Bushnell, 14 August 1862, 23 February 1863, and 22 July 1863, *ibid.*

46 Roberts, *Civil War Ironclads*, 22-4.

drive – were, and are, essential in any industrial-military complex. During the Civil War, the navy purchased 418 vessels and began construction of over 200.⁴⁷ Other government departments, especially the army, also acquired a large fleet of transports for the war. The government’s need, resources, and timeframe forced it to acquire these vessels from civilian shipyards, engineers, and contractors. This relationship “foreshadowed the military–industrial complex that began taking shape during the construction of the new steel Navy in the 1880s and 1890s.”⁴⁸ Bushnell, his partners, and the many other people who performed similar deeds, though striving for profit, did provide a patriotic, perhaps even altruistic, service for their country in a time of crisis.

47 Paul H. Silverstone, *Warships of the Civil War Navies* (Annapolis, Md: Naval Institute Press, 1989), ix.

48 Hackemer, *U.S. Navy and the Origins*, 137.

