

Iron Clad Frigates—Bending Armor Plates, &c.

From the *Scientific American*.

The steam frigate *Roanoke*, which is now in the Navy Yard, at Brooklyn, has been razeed, and is being converted into an iron-clad turret war ship. She is to be clothed amidships with thick iron plates, which are to extend about five feet below the water-line; and she will have three great revolving gun turrets on deck, and a powerful iron beak or ram on her bow. This beak resembles a huge ax, and is formed of two plates, twenty feet long, four and a half inches thick, thus making nine inches of iron on the front edge. Each of the revolving gun turrets will be twenty feet inside diameter, and the sides will be formed of eleven courses of inch iron plates.

These plates are laid over and riveted to one another in such a manner as to "break joints," and vertical plates are also bolted to several courses so as to secure the whole in the most rigid and perfect manner. These gun towers for the *Roanoke* are now being constructed at the Novelty Works, in this city, where the plates for them, likewise those for the armor, are bent to the proper curves. Each plate for a turret is about nine feet in length by forty inches in width, and an inch in thickness. Two courses of rivet holes are punched out in each, and they are all bent cold in a powerful hydraulic press. The bed plate of the press is of a concave form, and the top block is of a convex form.

A plate to be bent is placed upon the concave bed plate of the press, and when properly adjusted the pump forces up three rams under it, and the plate is reduced to the proper curve against the top block. The pressure to which each plate is submitted, to give it the proper curve, is three and a half million pounds. By this method of bending the turret plates cold, there is perfect uniformity and accuracy secured for the whole. The turrets for the *Roanoke* will be of a superior character, but only six courses of plates have as yet been laid on two of them.

The bending of the thick plates for the ram, and also for the sides of the frigate, is quite a different and difficult operation to perform, compared with these of the gun-towers. Each of these plates has to be bent to the proper curve to suit its own particular place on the vessel, and not only the broadside but the edges also must be bent to suit the particular curves. The bending operations are under the charge of Mr. George Bonniwell, an intelligent young shipwright. All these plates are hammered iron, and are furnished by several companies in Pennsylvania, New York and Massachusetts. When they arrive, they resemble huge straight iron slabs, varying in length from eleven to twenty-two feet, and in breadth, from twenty-two to twenty-four inches, and their average thickness is four and a half inches. One of eleven and a half feet length weighs about 4,240 lbs.; one of twenty-two feet length, for the ram, weighs over four tons. Such masses of iron are difficult to move about, and the operations connected with bending them are necessarily tedious and troublesome; and they require great care and skill to conduct properly. Of course it is impossible to bend such masses of iron cold, hence each plate is first heated to nearly a white heat in a long furnace, shaped somewhat like a baker's oven, with a movable arched cover. The press for bending is quite different from the one used for the turret plates. Outwardly it resembles a long, strong iron screw press, used for pressing woolen cloth. Its top block, or platen, is moved up and down, but its bed is fixed and very solid. A dudgeon hydraulic jack at each end supports and moves the block up and down. The bed, upon which the heated plate is laid, is formed of a series of adjustable bolster blocks, each of which is capable of being set by a screw to any desired height on either side, and at any desired angle to suit the bend to be given to a plate which is compressed between the descending top-block and the adjustable bed. A plate is first placed in the furnace, and it is then raised to nearly a white heat. The cover is now raised by a block and tackle, and the plate is then seized by a powerful crane, secured on a carriage. The heated plate is now lifted, the crane carriage moved back, and the plate swung around and placed in the press, where it is perfectly adjusted to obtain the proper curves. The huge top-block is then forced down, squeezing the great mass of iron into the desired shape.

In about half an hour the plate has acquired a permanent set, and it is taken out, ready to have its edges planed, when it is fit for bolting to the frigate. The bolt holes in these plates are all drilled. It requires a large number of men to move such great heavy masses of iron, and from the time a glowing plate is lifted out of the furnace until it is secured in the press, the scene is one of extraordinary activity and excitement, as the plate requires to be placed in the press as expeditiously as possible before it becomes cool. The metal of these plates appears to be first class; but until

within a few days past they were furnished very slowly by the different contractors. The plating of the *Roanoke* will now proceed with greater rapidity; still, she will not be finished for several months to come.

The *New Ironsides* is the first iron-plated sea-going war steamer of large size built by the United States Government. She was constructed from plans and specifications presented to the Navy Department last September, by Merrick & Sons, of Philadelphia. They in turn contracted with Messrs. Cramp & Sons, of Kensington; also, with the Bristol Forge and Brown & Co., of Pittsburg, for the $4\frac{1}{2}$ inch plating—reserving to themselves the construction of the machinery and the general arrangement of the several parts. The contract was dated October 15th, and the vessel was to be ready for steam July 15th. Chief Engineer W. W. Wood, of the navy, superintended the machinery and plating; and Naval Constructor Henry Hoover, the hull.

The vessel is 240 feet long, 58 feet 6 inches wide, and 25 deep, being 3,250 tons, and having a berth, gun, and spar deck, the latter being shot proof. Her frames are of white oak filled in solid and caulked, and the average thickness of her sides is 20 inches. The iron-plating commences at a point four feet below the water-line and extends to her spar-deck. The lower course is three inches; all the rest is four and a half inches thick. All the plates are 15 feet long, the width varying from 25 to 30 inches; each plate is fastened to the vessel by $21\frac{1}{2}$ -inch screw bolts, 23 inches long, which secure the several thicknesses of timber to the plates, thus tying all together.

The machinery consists of two horizontal direct-action steam engines, with cylinders of 50 inches diameter and 30 inches stroke, intended to make 85 revolutions per minute, and drive a brass four-bladed propeller of 13 feet diameter and 18 feet pitch. The boilers are four in number (horizontal tubular,) each 17 feet front, 11 feet deep, and 11 feet high, of a collective force of 1,600 horses. The armament will consist of sixteen 11-inch Dahlgren guns on the gun-deck, and two 200-pound Parrott guns on the spar deck. The portholes will be closed by iron shutters five inches thick, worked from the inside. As this is a sea-going steamer, intended to sail as well as steam, she has three masts and is bark-rigged, her topmasts and yards being so arranged that in action they are lowered, and leave simply the three lower masts in view. When in action all the men on board are protected from shot or shell, and are below the spar-deck; the commander only is above that deck, and he occupies a shot-proof iron lock-out which rises above the spar deck, and from which he can see all surrounding objects and by signals communicate with his officers below.

The wood used in the construction of the vessel is principally oak, cut in Pennsylvania and along the borders of the Delaware. The plates are connected by tongues of iron, fitting into grooves. The heavy plates weigh about 6,248 pounds. The head of the bolts holding the plates are countersunk, and a smooth surface will always be presented to the balls of the enemy. It is believed that her powers of resistance will enable her to go alongside of any vessel or fort with impunity, while from her large size she can carry a sufficient force to capture any vessel she may disable.

A CALCULATING PATIENT.—A correspondent, writing from one of the divisions of the army, states that he recently met a tall, gaunt-looking volunteer, whose appearance not only indicated that he was lately from a hospital, but that it would perhaps have been better for him to have remained there still, for he certainly did not seem to be in a fit condition to travel. He was from Eastern Ohio, and by some strange whim of his comrades (soldiers have odd notions as to names) he had won the cognomen of "Beaugard." He was full of dry humor, and it had a peculiar zest, coming from such a dilapidated specimen of the human kind. I asked him: "How long were you in the hospital at—?" "I stayed just five days; I couldn't stand it any longer."

"Why so? Were you not well treated?" "Well, you see, when I went in, there were six patients. The first day they buried one." "Well, what of that?" "Nothing—only the next day they buried another." "They must have been severe cases. It was very unpleasant for you, no doubt." "Decidedly unpleasant. I knew my turn would come in time. I went in on Monday, and if staid I would be carried out on Saturday. So I made my calculation, and on Friday I packed my knapsack and went away. If I had not, I'd surely been buried on Saturday. Six days, one man each day. I couldn't stand that."

"Well, what next?" said Mrs. Partington, as she interrupted Ike, who was reading the war news—"the pickets were driven in five miles! Bless my poor soul, but that will make a strong fence. I suppose they had to be driven in deep, to keep the Sessionaders from digging out under them."

General Orders.

HEAD QUARTERS:—DEPARTMENT OF THE SOUTH.

Hilton Head, Port Royal, S. C., Aug. 19, 1862.
GENERAL ORDERS, NO. 28.]

The following Quarantine Regulations for the Port of Port Royal, S. C., are hereby established;—

I. Hereafter, the Quarantine Ground will be in St. Helena Sound; at the place designated by a white buoy and flag.

II. It shall be the duty of the Master and Pilot of every Vessel coming into the port, from this date until further orders (excepting pilot boats returning from their ordinary "Cruising Grounds,") to hoist a Signal for the "Health Officer," and to anchor off the inner buoy, there to remain until visited by him.

III. It shall be the duty of the "Health Officer," without unnecessary delay, to visit every vessel made liable to visitation, and ascertain her sanitary condition, and the port from which she sailed; and every vessel having on board any case of Yellow Fever, Small Pox, Cholera, or other infectious or contagious disease,—and also every vessel coming from Key West, Havana, or any other port where Yellow Fever may exist,—he shall order to the "Quarantine Ground," there to remain, as long as he may deem proper.

IV. No person shall be allowed to leave the vessel, until she has been examined by the "Health Officer," nor will any communication be had with the vessel, until she has been so examined.

V. These Regulations will be strictly enforced by the Health Officer. Should there be any deviation therefrom, or should any of the orders given by the Health Officer to such vessels, not be strictly carried out, he will report the fact immediately to the Medical Director of this Department.

VI. Surgeon Crispell, U. S. Vols., is appointed Health Officer, of this port.

VII. Any violation of the above Regulations, will cause the immediate arrest and imprisonment of the offenders.

DAVID HUNTER, Major General Commanding.

FLAG SHIP WABASH, PORT ROYAL HARBOR S. C.
[GENERAL ORDER NO. 8.] February 13, 1862.

Nothing, in the suppression of this rebellion, has been more difficult to contend with, than information conveyed to the enemy of projected movements, sometimes by individuals holding places of trust, who have, unexpectedly, proved to be correspondents of the press; and not unfrequently, by the publication of private letters.

A recent glaring instance of the former, in my own command, has led to my asking the Navy Department, to issue a general order on this subject.

Until this order is promulgated, I hereby enjoin it upon every officer and man in this fleet, to avoid such a violation of Military propriety, and of the dictates of an honest patriotism; for, whether intended or not, the result of the practice is, to give aid and comfort to the enemy.

This General Order will be read at Muster on board of every vessel in the fleet.

S. F. DUPONT,
Commanding South Atlantic Block'g. Squadron.

—Rev. J. A. Anderson, chaplain of the Third Regiment California Volunteers, was decidedly on the rampage on the Fourth of July. At the close of the oration at the Agricultural Hall, in San Francisco, he pronounced the following strange benediction: And now may the God of Washington, the God of Foote, Halleck, McClellan and Lincoln nerve, guide, and surge the whole nation till Richmond is taken, Charleston burnt, secession annihilated, and slop-shop Union men turned out of existence. Amen.

—A Missionary in the Chinese waters having distributed several copies of the Ten Commandments on shore, they were sent back the next day with the request that they should be distributed among the French and English; "for," said the Chinese, "the tracts contain admirable doctrines, and these people evidently much need them."

—At a training down east, after an order was given to "return ramrods," one of the soldiers broke from the line and was off at full speed. "Halloo," bawled the commanding officer, "where are you going?" "Down to Squire Muggins, to return the ramrod borrowed of him. You said return ramrods."

—"Captain, are you going to run your steamboat in this fog?" a timid passenger asked of one of the Sound skippers. "No, sir," was the reply, "we might as well try to drive a toad through a barrel of tar."

—Bullets can sing and whistle, but they are not pleasant musicians.

—If a young woman's disposition is gun-powder, the sparks should be kept away from her.