

gable waters either of the James or the York River to approach Richmond; and as the James was closed by the *Virginia* in a manner he could not have foreseen, he was forced to use the York as his base of action against Richmond—a circumstance that saved that city from capture for three years.

The engagement at Drury's Bluff, or Fort

Darling, as it is sometimes called, was the last service of the *Virginia's* crew as a body; soon after they were scattered among the different vessels at Southern ports. The *Monitor*, too, disappeared from sight a few months later, foundering off Cape Hatteras while on a voyage to Charleston. So short-lived were the two vessels that revolutionized the navies of the world.

John Taylor Wood.

IN THE "MONITOR" TURRET.*

MARCH 9, 1862.



CAPTAIN JOHN ERICSSON, INVENTOR OF THE "MONITOR." (FROM A PHOTOGRAPH BY BRADY.)

THE keel of the most famous vessel of modern times, Captain Ericsson's first iron-clad,† was laid in the shipyard of Thomas F. Rowland, at Greenpoint, Brooklyn, in October, 1861, and on the 30th of January, 1862, the novel craft was launched. On the 25th of February she was commissioned and turned over to the Government, and nine days later left New York for Hampton Roads, where, on the 9th of March, occurred the memorable contest with the *Merrimac*. On her next venture on the open sea she foundered off Cape Hatteras in a gale of wind (December 29). During her career of less than a year, she had no fewer than five different commanders; but it was the fortune of the writer to serve as her only executive officer, standing upon her deck when she was launched, and leaving it but a few minutes before she sank.

So hurried was the preparation of the *Monitor* that the mechanics worked upon her night and day up to the hour of her departure, and little opportunity was offered to drill the crew at the guns, to work the turret, and to become familiar with the other unusual features of the vessel. The crew was, in fact, composed of volunteers. Lieutenant Worden, having been authorized by the Navy Department to select his men from any ship-of-war in New York harbor, addressed the crews of the *North Carolina* and *Sabine*, stating fully

* The general features of the *Monitor* are well known. The vessel was an iron-clad steam battery. The thin lower hull was protected by an overhanging armor. A revolving turret, containing the guns, was situated over all, 41 feet 6 inches; draught of water, 11 feet; inside diameter of turret, 20 feet; height of turret, 9 feet; thickness of turret, 8 inches; thickness of side armor, 5 inches; thickness of deck-plates, 1 inch; thickness of pilot-house, 9 inches. Her deck was one foot above the water-line. She carried two 11-inch smooth-bore guns, firing solid shot weighing 180 pounds. Her speed was between four and five knots. A novel feature was the absence of smoke-stacks in action; they and the pipes over the blowers were taken apart and laid flat on deck, which gave an all-round fire abaft. The draught to the furnaces was maintained by powerful blowers. The tops of the smoke-stacks were six feet above the deck, and the blower-pipes four and a half feet. These openings in the deck were covered by iron gratings. Her people were: Lieutenant J. L. Worden, commanding; Lieutenant S. D. Greene, executive officer; Acting Master, L. N. Stodder; Acting Master, J. N. Webber; Acting Master's Mate, George Frederickson; Acting Assistant Surgeon, D. C. Logue; Acting Assistant Paymaster, W. F. Keeler; Chief Engineer, A. C. Stimers, inspector; First Assistant Engineer, Isaac Newton, in charge of steam machinery; Second Assistant Engineer, A. B. Campbell; Third Assistant Engineer, R. W. Hands; Fourth Assistant Engineer, M. T. Sunstrom; Captain's Clerk, Daniel Toffey; Quartermaster, Peter Williams; Gunner's Mate, Joseph Crown; Boatswain's Mate, John Stocking; and forty-two others—a total of fifty-eight souls.—S. D. G.

† For details respecting the invention of the *Monitor*, the reader is referred to a biographical paper on Captain Ericsson by Colonel W. C. Church in this magazine for April, 1879. The origin of the name *Monitor* is given in the following letter to Gustavus V. Fox, Assistant Secretary of the Navy. [ED.]—

NEW YORK, January 20th, 1862.

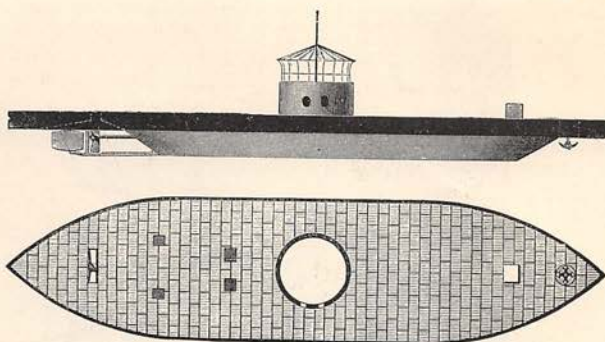
SIR:

In accordance with your request, I now submit for your approbation a name for the floating battery at Green Point.

The impregnable and aggressive character of this structure will admonish the leaders of the Southern Rebellion that the batteries on the banks of their rivers will no longer present barriers to the entrance of the Union forces. The iron-clad intruder will thus prove a severe monitor to those leaders.

to them the probable dangers of the passage to Hampton Roads and the certainty of having important service to perform after arriving. The sailors responded enthusiastically, many more volunteering than were required. Of the crew selected, Captain Worden said, in his official report of the engagement, "A better one no naval commander ever had the honor to command."

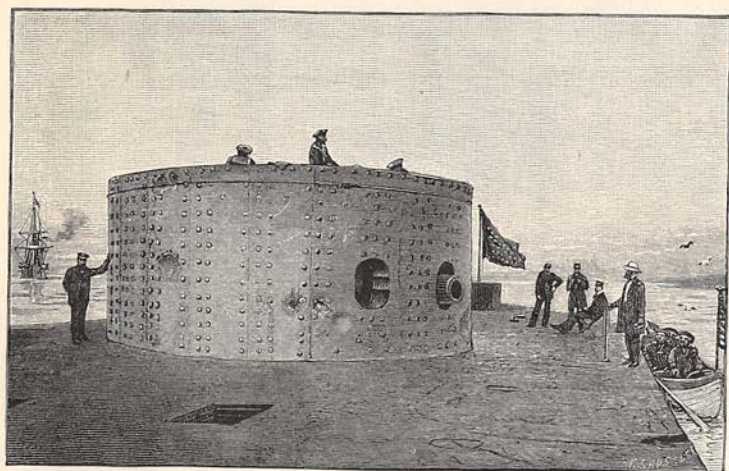
We left New York in tow of the tug-boat *Seth Low* at 11 A. M. of Thursday, the 6th of March. On the following day a moderate breeze was encountered, and it was at once evident that the *Monitor* was unfit for a sea-going craft. Nothing but the subsidence of the wind prevented her from being shipwrecked before she reached Hampton Roads. The berth-deck hatch leaked in spite of all we could do, and the water came down under the turret like a waterfall. It would strike the pilot-house and go over the turret in beautiful curves, and it came through the narrow eye-holes in the pilot-house with such force as to knock the helmsman completely round from the wheel. The waves also broke over the blower-pipes, and the water came down through them in such quantities that the belts of the blower-



SIDE ELEVATION AND DECK-PLAN OF THE "MONITOR."
 Propeller well. Blower-pipes. Smoke-stacks. Turret. Pilot-house. Anchor well.

engines slipped, and the engines consequently stopped for lack of artificial draught, without which, in such a confined place, the fires could not get air for combustion. Newton and Stimers, followed by the engineer's force, gallantly rushed into the engine-room and fire-room to remedy the evil, but they were unable to check the inflowing water, and were nearly suffocated with escaping gas. They were dragged out more dead than alive, and carried to the top of the turret, where the fresh air gradually revived them. The water continued to pour through the hawser-hole, and over and down the smoke-stacks and blower-pipes, in such quantities that there was imminent danger that the ship would founder.

The steam-pumps could not be operated because the fires had been nearly extinguished, and the engine-room was uninhabitable on account of the suffocating gas with which it was filled. The hand-pumps were then rigged and worked, but they had not enough force to throw the water out through the top of the turret,—the only opening,—and it was useless to bail, as we had to pass the buckets up through the turret, which made it a very long operation. For-



VIEW SHOWING THE EFFECT OF SHOT ON THE "MONITOR" TURRET. (FROM A PHOTOGRAPH TAKEN SOON AFTER THE ENGAGEMENT.)

[The ridges shown in the nearer part are significant of the haste with which the vessel was built. An opening of this shape is usually made by cutting three circles one above another and intersecting, and then trimming the edges to an oval. In this instance there was no time for the fitting process. It was originally designed that the armament should be 15-inch guns, but as these were not to be had in time, the 12-inch Dahlgrens were substituted.—ED.]

But there are other leaders who will also be startled and admonished by the booming of the guns from the impregnable iron turret. "Downing Street" will hardly view with indifference this last "Yankee notion," this monitor. To the Lords of the Admiralty the new craft will be a monitor suggesting doubts as to the propriety of completing those four steel-clad ships at three-and-a-half millions apiece. On these and many similar grounds I propose to name the new battery *Monitor*.

Your obedient servant,

J. ERICSSON.



John A. Worden
 REAR-ADMIRAL, U. S. N.
 (FROM A PHOTOGRAPH TAKEN IN 1875.)

[The sword was presented to Admiral Worden by the State of New York soon after the engagement in Hampton Roads.—Ed.]

tunately, towards evening the wind and sea subsided, and, being again in smooth water, the engine was put in operation. But at midnight, in passing over a shoal, rough water was again encountered, and our troubles were renewed, complicated this time with the jamming of the wheel-ropes, so that the safety of the ship depended entirely on the strength of the hawser which connected her with the tug-boat. The hawser, being new, held fast; but during the greater part of the night we were constantly engaged in fighting the leaks, until we reached smooth water again, just before daylight.

It was at the close of this dispiriting trial trip, in which all hands had been exhausted in

their efforts to keep the novel craft afloat, that the *Monitor* passed Cape Henry at 4 P. M. on Saturday, March 8th. At this point was heard the distant booming of heavy guns, which our captain rightly judged to be an engagement with the *Merrimac*, twenty miles away. He at once ordered the vessel stripped of her sea-rig, the turret keyed up, and every preparation made for battle. As we approached Hampton Roads we could see the fine old *Congress* burning brightly, and soon a pilot came on board and told of the arrival of the *Merrimac*, the disaster to the *Cumberland* and the *Congress*, and the dismay of the Union forces. The *Monitor* was pushed with all haste, and reached the *Roanoke* (Captain Marston),

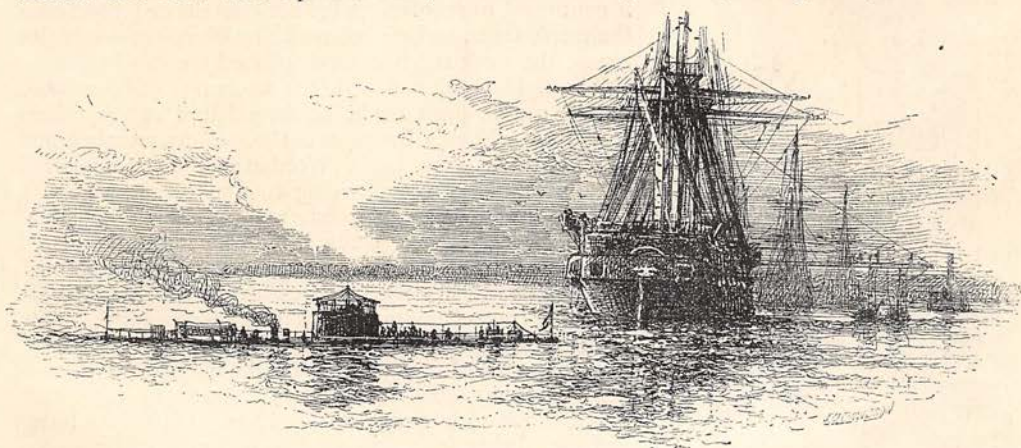
anchored in the Roads, at 9 p. m. Worden immediately reported his arrival to Captain Marston, who suggested that he should go to the assistance of the *Minnesota*, then aground off Newport News. As no pilot was available, Captain Worden accepted the volunteer services of Acting Master Samuel Howard, who earnestly sought the duty. An atmosphere of gloom pervaded the fleet, and the pygmy aspect of the new-comer did not inspire confidence among those who had witnessed the destruction of the day before. Skillfully piloted by Howard, we proceeded on our way, our path illumined by the blaze of the *Congress*. Reaching the *Minnesota*, hard and fast aground, near midnight, we anchored, and Worden reported to Captain Van Brunt. Between 1 and 2 A. M. the *Congress* blew up, not instantaneously, but successively; her powder-tanks seemed to explode, each shower of sparks rivaling the other in its height, until they appeared to reach the zenith—a grand but mournful sight. Near us, too, lay the *Cumberland* at the bottom of the river, with her silent crew of brave men, who died while fighting their guns to the water's edge, and whose colors were still flying at the peak.*

The dreary night dragged slowly on; the officers and crew were up and alert, to be

Van Brunt officially reports, "I made signal to the *Monitor* to attack the enemy," but the signal was not seen by us; other work was in hand, and Worden required no signal.

The pilot-house of the *Monitor* was situated well forward, near the bow; it was a wrought-iron structure, built of logs of iron nine inches thick, bolted through the corners, and covered with an iron plate two inches thick, which was not fastened down, but was kept in place merely by its weight. The sight-holes or slits were made by inserting quarter-inch plates at the corners between the upper set of logs and the next below. The structure projected four feet above the deck, and was barely large enough inside to hold three men standing. It presented a flat surface on all sides and on top. The steering-wheel was secured to one of the logs on the front side. The position and shape of this structure should be carefully borne in mind.

Worden took his station in the pilot-house, and by his side were Howard, the pilot, and Peter Williams, quartermaster, who steered the vessel throughout the engagement. My place was in the turret, to work and fight the guns; with me were Stodder and Stimers and sixteen brawny men, eight to each gun. John Stocking, boatswain's mate, and Thomas Lochrane, seaman, were gun-captains. New-



ARRIVAL OF THE "MONITOR" AT HAMPTON ROADS.

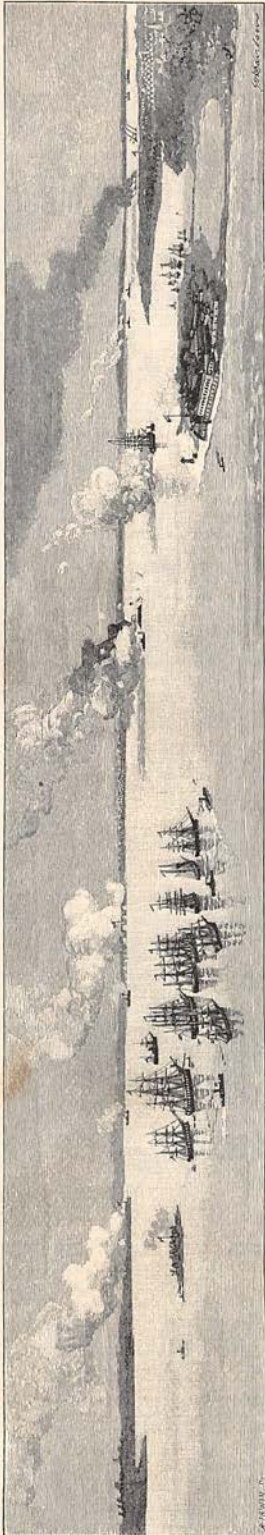
ready for any emergency. At daylight on Sunday the *Merrimac* and her consorts were discovered at anchor near Sewall's Point. At about half-past seven o'clock the enemy's vessels got under way and steered in the direction of the *Minnesota*. At the same time the *Monitor* got under way, and her officers and crew took their stations for battle. Captain

ton and his assistants were in the engine and fire rooms, to manipulate the boilers and engines, and most admirably did they perform this important service from the beginning to the close of the action. Webber had charge of the powder division on the berth-deck, and Joseph Crown, gunner's mate, rendered valuable service in connection with this duty.

* The fortune of civil war was illustrated in the case of the *Merrimac*. Commodore Buchanan's brother was an officer of the *Congress*, and each knew of the other's presence. The first and fourth lieutenants had each a brother in the United States Army. The father of the fifth lieutenant was also in the United States Army. The father of one of the midshipmen was in the United States Navy. Lieutenant Butt, of the *Merrimac*, had been the room-mate of Lieutenant Greene of the *Monitor* at the Naval Academy in Annapolis.—ED.

Confederate battery, Sewall's Point,
Confederate steamers *Yorktown* and
Famestown.

Confederate batteries at Pig Point and Barrel Point.
James River.



Casport,
Portsmouth,
Norfolk.

Federal Battery Rip-Raps.

French man-of-war,
U. S. frigate *Keanoké* and transports and store-ships.

Monitor and *Merrimac*.

Minnesota.

Fortress Monroe.

Wrecks of *Congress* and *Cumberland*.
Federal batteries and camp at Newport News,
Hampton.

BIRD'S-EYE VIEW OF THE ENGAGEMENT.

The physical condition of the officers and men of the two ships at this time was in striking contrast. The *Merrimac* had passed the night quietly near Sewall's Point, her people enjoying rest and sleep, elated by thoughts of the victory they had achieved that day, and cheered by the prospects of another easy victory on the morrow. The *Monitor* had barely escaped shipwreck twice within the last thirty-six hours, and since Friday morning, forty-eight hours before, few if any of those on board had closed their eyes in sleep or had anything to eat but hard bread, as cooking was impossible; she was surrounded by wrecks and disaster, and her efficiency in action had yet to be proved.

Worden lost no time in bringing it to test. Getting his ship under way, he steered direct for the enemy's vessels, in order to meet and engage them as far as possible from the *Minnesota*. As he approached, the wooden vessels quickly turned and left. Our captain, to the "astonishment" of Captain Van Brunt (as he states in his official report), made straight for the *Merrimac*, which had already commenced firing; and when he came within short range, he changed his course so as to come alongside of her, stopped the engine, and gave the order, "Commence firing!" I triced up the port, ran out the gun, and, taking deliberate aim, pulled the lockstring. The *Merrimac* was quick to reply, returning a rattling broadside (for she had ten guns to our two), and the battle fairly began. The turret and other parts of the ship were heavily struck, but the shots did not penetrate; the tower was intact, and it continued to revolve. A look of confidence passed over the men's faces, and we believed the *Merrimac* would not repeat the work she had accomplished the day before.

The fight continued with the exchange of broadsides as fast as the guns could be served and at very short range, the distance between the vessels frequently being not more than a few yards. Worden skillfully manœuvred his quick-turning vessel, trying to find some vulnerable point in his adversary. Once he made a dash at her stern, hoping to disable her screw, which he thinks he missed by not more than two feet. Our shots ripped the iron of the *Merrimac*, while the reverberation of her shots against the tower caused anything but a pleasant sensation. While Stodder, who was stationed at the machine which controlled the revolving motion of the turret, was incautiously leaning against the side of the tower, a large shot struck in the vicinity and disabled him. He left the turret and went below, and Stimers, who had assisted him, continued to do the work.

The drawbacks to the position of the pilot-house were soon realized. We could not fire ahead nor within several points of the bow, since the blast from our own guns would have injured the people in the pilot-house, only a few yards off. Keeler and Toffey passed the captain's orders and messages to me, and my inquiries and answers to him, the speaking-tube from the pilot-house to the turret having been broken early in the action. They performed their work with zeal and alacrity, but, both being landsmen, our technical communications sometimes miscarried. The situation was novel: a vessel of war was engaged in desperate combat with a powerful foe; the captain, commanding and guiding all, was inclosed in



JOHN TAYLOR WOOD, LIEUTENANT ON THE "MERRIMAC," AND AFTERWARD COMMANDER OF THE PRIVATEER "TAL-LAHASSEE." (FROM A DAGUERRETYPE.)

one place, and the executive officer, working and fighting the guns, was shut up in another, and communication between them was difficult and uncertain. It was this experience which caused Isaac Newton, immediately after the engagement, to suggest the clever plan of putting the pilot-house on top of the turret, and making it cylindrical instead of square; and his suggestions were subsequently adopted in this type of vessel.

As the engagement continued, the working of the turret was not altogether satisfactory. It was difficult to start it revolving, or, when once started, to stop it, on account of the imperfections of the novel machinery, which was now undergoing its first trial. Stimers was an active, muscular man, and did his utmost to control the motion of the turret; but, in spite of his efforts, it was difficult if not impossible to secure accurate firing. The conditions were very different from those of an ordinary broad-side gun, under which we had been trained on wooden ships. My only view of the world outside of the tower was over the muzzles of the guns, which cleared the ports by a few inches only. When the guns were

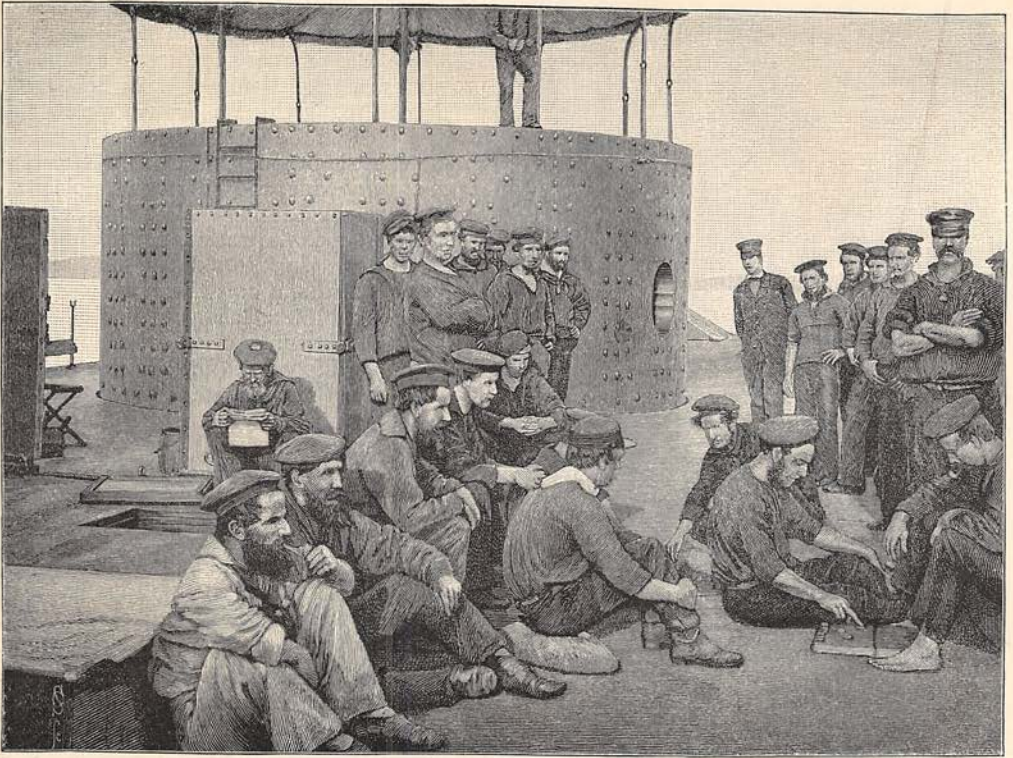
run in, the port-holes were covered by heavy iron pendulums, pierced with small holes to allow the iron rammer and sponge handles to protrude while they were in use. To hoist these pendulums required the entire gun's crew and vastly increased the work inside the turret.

The effect upon one shut up in a revolving drum is perplexing, and it is not a simple matter to keep the bearings. White marks had been placed upon the stationary deck immediately below the turret to indicate the direction of the starboard and port sides, and the bow and stern; but these marks were obliterated early in the action. I would continually ask the captain, "How does the *Merrimac* bear?" He replied, "On the starboard-beam," or "On the port-quarter," as the case might be. Then the difficulty was to determine the direction of the starboard-beam, or port-quarter, or any other bearing. It finally resulted, that when a gun was ready for firing, the turret would be started on its revolving journey in search of the target, and when found it was taken "on the fly," because the turret could not be accurately controlled. Once the *Merrimac* tried to ram us; but Worden avoided the direct impact by the skillful use of the helm, and she struck a glancing blow, which did no damage. At the instant of collision I planted a solid one-hundred-and-eighty-pound shot fair and square upon the forward part of her casemate. Had the gun been loaded with thirty pounds of powder, which was the charge subsequently used with similar guns, it is probable that this shot would have penetrated her armor; but the charge being limited to fifteen pounds, in accordance with peremptory orders to that effect from the Navy Department, the shot rebounded without doing any more damage than possibly to start some of the beams of her armor-backing.

It is stated by Colonel Wood, of the *Merrimac*, that when that vessel rammed the *Cumberland* her iron ram, or beak, was broken off and left in that vessel. In a letter to me, about two years since, he described this ram as "of



SINKING OF THE "MONITOR," DECEMBER 29, 1862.



PART OF THE CREW OF THE "MONITOR."* (FROM A PHOTOGRAPH TAKEN SOON AFTER THE FIGHT.)

cast-iron, wedge-shaped, about fifteen hundred pounds in weight, two feet under water, and projecting two and a half feet from the stem." A ram of this description, had it been intact, would have struck the *Monitor* at that part of the upper hull where the armor and backing were thickest. It is very doubtful if, under any headway that the *Merrimac* could have acquired at such short range, this ram could have done any injury to this part of the vessel. That it could by no possibility have reached the thin lower hull is evident from a glance at the

drawing of the *Monitor*, the overhang or upper hull being constructed for the express purpose of protecting the vital part of the vessel.

The battle continued at close quarters without apparent damage to either side. After a time, the supply of shot in the turret being exhausted, Worden hauled off for about fifteen minutes to replenish. The serving of the cartridges, weighing but fifteen pounds, was a matter of no difficulty; but the hoisting of the heavy shot was a slow and tedious operation, it being necessary that the turret should re-

* The pride of Worden in his crew was warmly reciprocated by his men, and found expression in the following letter, written to him while he was lying in Washington disabled by his wound. We take it from Professor Soley's volume, "The Blockade and the Cruisers" (New York: Charles Scribner's Sons). [ED.] :—

To Captain Worden.

HAMPTON ROADS, April 24th, 1862.

To Our Dear and Honored Captain.

U. S. MONITOR.

DEAR SIR: These few lines is from your own crew of the *Monitor*, with their kindest Love to you their Honored Captain, hoping to God that they will have the pleasure of welcoming you back to us again soon, for we are all ready able and willing to meet Death or anything else, only give us back our Captain again. Dear Captain, we have got your Pilot-house fixed and all ready for you when you get well again; and we all sincerely hope that soon we will have the pleasure of welcoming you back to it. . . . We are waiting very patiently to engage our Antagonist if we could only get a chance to do so. The last time she came out we all thought we would have the Pleasure of sinking her. But we all got disappointed, for we did not fire one shot, and the Norfolk papers says we are cowards in the *Monitor*—and all we want is a chance to show them where it lies with you for our Captain We can teach them who is cowards. But there is a great deal that we would like to write to you but we think you will soon be with us again yourself. But we all join in with our kindest love to you, hoping that God will restore you to us again and hoping that your sufferings is at an end now, and we are all so glad to hear that your eyesight will be spared to you again. We would wish to write more to you if we have your kind Permission to do so but at present we all conclude by tendering to you our kindest Love and affection, to our Dear and Honored Captain.

We remain until Death your Affectionate Crew

THE MONITOR BOYS.

main stationary, in order that the two scuttles, one in the deck and the other in the floor of the turret, should be in line. Worden took advantage of the lull, and passed through the port-hole upon the deck outside to get a better view of the situation. He soon renewed the attack, and the contest continued as before.

Two important points were constantly kept in mind: first, to prevent the enemy's projectiles from entering the turret through the port-holes,—for the explosion of a shell inside, by disabling the men at the guns, would have ended the fight, there being no relief gun's crews on board; second, not to fire into our own pilot-house. A careless or impatient hand, during the confusion arising from the whirligig motion of the tower, might let slip one of our big shot against the pilot-house. For this and other reasons I fired every gun while I remained in the turret.

Soon after noon a shell from the enemy's gun, the muzzle not ten yards distant, struck the forward side of the pilot-house directly in the sight-hole, or slit, and exploded, cracking the second iron log and partly lifting the top, leaving an opening. Worden was standing immediately behind this spot, and received in his face the force of the blow, which partly stunned him, and, filling his eyes with powder, utterly blinded him. The injury was known only to those in the pilot-house and its immediate vicinity. The flood of light rushing through the top of the pilot-house, now partly open, caused Worden, blind as he was, to believe that the pilot-house was seriously injured, if not destroyed; he therefore gave orders to put the helm to starboard and "sheer off." Thus the *Monitor* retired temporarily from the action, in order to ascertain the extent of the injuries she had received. At the same time Worden sent for me, and leaving Stimers the only officer in the turret, I went forward at once, and found him standing at the foot of the ladder leading to the pilot-house.

He was a ghastly sight, with his eyes closed



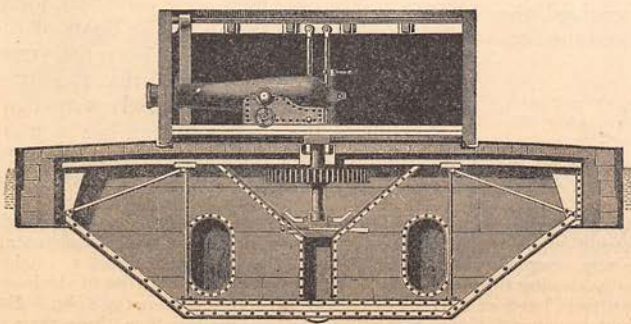
FIRST ASSISTANT-ENGINEER ISAAC NEWTON. (FROM A MEDALION PORTRAIT BY LAUNT THOMPSON.)

[At the time of Mr. Newton's death (September 25, 1884) he had been for several years Chief Engineer of the Croton Aqueduct. The plans which have been adopted for the new aqueduct were his, both in the general features and the details.—ED.]

and the blood apparently rushing from every pore in the upper part of his face. He told me that he was seriously wounded, and directed me to take command. I assisted in leading him to a sofa in his cabin, where he was tenderly cared for by Doctor Logue, and then I assumed command. Blind and suffering as he was, Worden's fortitude never forsook him; he frequently asked from his bed of pain of the progress of affairs, and when told that the *Minnesota* was saved, he said, "Then I can die happy."

When I reached my station in the pilot-house, I found that the iron log was fractured and the top partly open; but the steering-gear was still intact, and the pilot-house was not totally destroyed, as had been feared. In the confusion of the moment resulting from so serious an injury to the commanding officer, the *Monitor* had been moving without direction. Exactly how much time elapsed from the moment that Worden was wounded until I had reached the pilot-house and completed the examination of the injury at that point, and determined what course to pursue

in the damaged condition of the vessel, it is impossible to state; but it could hardly have exceeded twenty minutes at the utmost. During this time the *Merrimac*, which was leaking badly, had started in the direction of the Elizabeth River; and, on taking my station in the pilot-house and turning the vessel's head in the direction of the *Merrimac*, I saw that she was already in retreat. A few shots were fired at the retiring vessel,



TRANSVERSE SECTION OF THE "MONITOR" THROUGH THE CENTER OF THE TURRET.
VOL. XXIX.—77.

and she continued on to Norfolk. I returned with the *Monitor* to the side of the *Minnesota*, where preparations were being made to abandon the ship, which was still aground. Shortly afterward Worden was transferred to a tug, and that night he was carried to Washington.

The fight was over. We of the *Monitor* thought, and still think, that we had gained a great victory. This the Confederates have denied. But it has never been denied that the object of the *Merrimac* on the 9th of March was to complete the destruction of the Union fleet in Hampton Roads, and that in this she was completely foiled and driven off by the *Monitor*; nor has it been denied that at the close of the engagement the *Merrimac* retreated to Norfolk, leaving the *Monitor* in possession of the field.*

In this engagement Captain Worden displayed the highest qualities as an officer and man. He was in his prime (forty-four years old), and carried with him the ripe experience of twenty-eight years in the naval service. He joined the ship a sick man, having but recently left a prison in the South. He was nominated for the command by the late Admiral Joseph Smith, and the result proved the wisdom of the choice. Having accepted his orders against the protests of his physicians and the entreaties of his family, nothing would deter him from the enterprise. He arrived on the battle-ground amidst the disaster and gloom, almost despair, of the Union people, who had little faith that he could beat back the powerful *Merrimac*, after her experience with the *Cumberland* and *Congress*. Without encouragement, single-handed, and without specific orders from any source, he rose above the atmosphere of doubt and depression which surrounded him, and with unflinching nerve and undaunted courage he hurled his little untried vessel against his huge, well-proved antagonist, and won the battle. He was victor in the first iron-clad battle of the world's history.

The subsequent career of the *Monitor* needs but a few words.

On the day after the fight I received the following letter from Mr. Fox, Assistant Secretary of the Navy:

"U. S. STEAMER *Roanoke*, OLD POINT,
"March 10, 1862.

"MY DEAR MR. GREENE:

"Under the extraordinary circumstances of the contest of yesterday, and the responsibilities devolv-

ing upon me, and your extreme youth,† I have suggested to Captain Marston to send on board the *Monitor*, as temporary commanding, Lieutenant Selfridge, until the arrival of Commodore Goldsborough, which will be in a few days. I appreciate your position, and you must appreciate mine, and serve with the same zeal and fidelity.

"With the kindest wishes for you all, most truly,
"G. V. FOX."

For the next two months we lay at Hampton Roads. Twice the *Merrimac* came out of the Elizabeth River, but did not attack. We, on our side, had received positive orders not to attack in the comparatively shoal waters above Hampton Roads, where the Union fleet could not manœuvre. The *Merrimac* protected the James River, and the *Monitor* protected the Chesapeake. Neither side had an iron-clad in reserve, and neither wished to bring on an engagement which might disable its only armored naval defense in those waters.

With the evacuation of Norfolk and the destruction of the *Merrimac*, the *Monitor* moved up the James River with the squadron under the command of Commander John Rodgers, in connection with McClellan's advance upon Richmond by the Peninsula. We were engaged for four hours at Fort Darling, but were unable to silence the guns or destroy the earthworks.

Probably no ship was ever devised which was so uncomfortable for her crew, and certainly no sailor ever led a more disagreeable life than we did on the James River, suffocated with heat and bad air if we remained below, and a target for sharpshooters if we came on deck.

With the withdrawal of McClellan's army, we returned to Hampton Roads, and in the autumn were ordered to Washington, where the vessel was repaired. We returned to Hampton Roads in November, and sailed thence (December 29) in tow of the steamer *Rhode Island*, bound for Beaufort, N. C. Between 11 P. M. and midnight on the following night the *Monitor* went down in a gale, a few miles south of Cape Hatteras. Four officers and twelve men were drowned, forty-nine people being saved by the boats of the steamer. It was impossible to keep the vessel free of water, and we presumed that the upper and lower hulls thumped themselves apart.

No ship in the world's history has a more imperishable place in naval annals than the *Monitor*. Not only by her providential arrival

* "My men and myself were perfectly black with smoke and powder. All my underclothes were perfectly black, and my person was in the same condition. . . . I had been up so long, and been under such a state of excitement, that my nervous system was completely run down. . . . My nerves and muscles twitched as though electric shocks were continually passing through them. . . . I lay down and tried to sleep—I might as well have tried to fly." From a private letter of Lieutenant Greene, written just after the fight.—ED.

† I was twenty-two years of age, and previous to joining the *Monitor* had seen less than three years of active service, with the rank of midshipman.—S. D. G.

at the right moment did she secure the safety of Hampton Roads and all that depended on it, but the ideas which she embodied revolutionized the system of naval warfare which had existed from the earliest recorded history. The name of the *Monitor* became generic,

representing a new type; and, crude and defective as was her construction in some of its details,* she yet contained the idea of the turret, which is to-day the central idea of the most powerful armored vessels.

S. D. Greene,†
Commander U. S. Navy.

* In regard to this criticism of the *Monitor*, Captain Ericsson has sent to the Editor the following statement: "Evidently the author refers to sea-going qualities, forgetful of the fact that the *Monitor* was constructed to perform the functions of a river-battery, impregnable to Confederate ordnance of the heaviest caliber. With reference to its properties as a fighting machine, the maritime world deemed it not only a complete success, but a remarkable specimen of naval engineering. The Emperor of Russia accordingly sent the accomplished Admiral Lessofsky to study its construction and watch the building of the new fleet of Passaic class of monitors—which, in all essential features, resembled the original. The Russian admiral, after having been present during a trial trip from New York to Fortress Monroe, of the monitor *Montauk* (subsequently hit by Confederate shot 214 times) reported so favorably to his government that the Emperor ordered twelve vessels to be built to Captain Ericsson's plans, precisely like the American monitors. This fleet paid a visit to Stockholm immediately after completion, causing a profound sensation among the Swedes."

† On account of the recent death of the writer of this paper, which occurred December 11, 1884, soon after its preparation, the proofs did not receive the benefit of his revision. The article appears substantially in the form in which it was written, without changes other than verbal ones and a slight rearrangement of paragraphs.

Commander S. Dana Greene was the son of General George S. Greene, who was graduated at West Point in 1823, and served with distinction throughout the Civil War, being severely wounded in the face at the battle of Wauhatchie, near Chattanooga, Tenn., in October, 1863. He was appointed to the Naval Academy from Rhode Island in 1855, and was graduated in 1859. He served as midshipman on the *Hartford* in the China Squadron from 1859 to 1862; as lieutenant on the *Monitor* in 1862; on the *Florida* in 1863, blockading on the coast of North Carolina; on the *Iroquois*, under Commander (now Rear-Admiral) C. R. P. Rodgers, in 1864-65, making a cruise around the world in search of the *Alabama*, but without finding her, that honor having fallen to the *Kearsarge*; as lieutenant-commander on the *Ossipee*, *Saranac*, and *Pensacola*, in the Pacific Squadron, in 1868 to 1871; as commander of the *Juniata* and *Monongahela* in the Atlantic Squadron, in 1875 to 1878, and of the *Despatch* in 1883-84; with intervals of shore duty in various positions at the Naval Academy—1865-68, 1872-74, 1878-83. He died at the Portsmouth Navy Yard, December 11, 1884, aged 44.

Of the services of Mr. Greene in connection with the *Monitor*, Captain Worden made the following official record in a letter to the Secretary of the Navy: "I was ordered to her (the *Monitor*) on the 13th of January, 1862, when she was still on stocks. Prior to that date Lieutenant S. D. Greene had interested himself in her and thoroughly examined her construction and design and informed himself as to her qualities, and, notwithstanding the many gloomy predictions of naval officers and officers of the mercantile marine as to the great probability of her sinking at sea, volunteered to go in her, and, at my request, was ordered. From the date of his orders he applied himself unremittingly and intelligently to the study of her peculiar qualities and to her fitting and equipment. . . . Lieutenant Greene, after taking his place in the pilot-house and finding the injuries there less serious than I had supposed, had turned the vessel's head again in the direction of the enemy to continue the engagement; but before he could get at close quarters with her she retired. He therefore very properly returned to the *Minnesota* and lay by her until she floated. . . . Lieutenant Greene, the executive officer, had charge in the turret, and handled the guns with great courage, coolness, and skill; and throughout the engagement, as in the equipment of the vessel and on her passage to Hampton Roads, he exhibited an earnest devotion to duty unsurpassed in my experience."—ED.



THE "MONITOR" IN BATTLE TRIM.

WATCHING THE "MERRIMAC."

In March, 1862, I was in command of a Confederate brigade and of a district on the south side of the James River, embracing all the river forts and batteries down to the mouth of Nansmond River. My pickets were posted all along the shore opposite Newport News. From my headquarters at Smithfield I was in

constant and rapid communication through relays of couriers and signal stations with my department commander, Major-General Huger, stationed at Norfolk.

About 1 P. M. on the 8th of March, a courier dashed up to my headquarters with this brief dispatch: "The *Virginia* is coming up