

# THE SINKING OF THE "MERRIMAC."<sup>1</sup>

## PART I. THE SCHEME AND THE PREPARATIONS.

BY RICHMOND PEARSON HOBSON, NAVAL CONSTRUCTOR, U. S. N.

ON May 29, 1898, Admiral Sampson's flagship, the *New York*, lay at Key West, outside the reef, hurriedly coaling from lighters on both sides. The *Oregon*, just arrived after her notable voyage around Cape Horn, lay near at hand, coaling with equal despatch. It was evident to all that an urgent purpose and a definite objective were in mind.

A few days before the flagship had suddenly left the squadron patrolling along the mouths of the channels of the Bahamas, and had run full speed to Key West. Despatches had come on board giving information that the Spanish fleet, under Admiral Cervera, had put into Santiago harbor; but evidently Admiral Sampson's anxiety was not relieved, for he left the squadron under Commodore Watson to guard the approaches to Havana, despatched the *New Orleans* to Commodore Schley on the south of Cuba, and went post-haste to the nearest coaling-station, taking his flagship alone.

The admiral's purpose was not known to me, but the circumstances of the coaling showed clearly that distant service was in view. I deemed it proper, before leaving for such service, to make known to him certain features of a plan relating to the prospective reduction of Havana, the details of which, if it should be adopted, would require early attention; and it was while making this report that the scheme of sinking the *Merrimac* began to take shape.

### THE WRITER'S PLAN TO DESTROY TORPEDOES AT SAN JUAN.

THE reduction of so strongly garrisoned a city by land forces would involve enormous loss of life, but our armored vessels, under cover of night, could run the formidable fortifications, if only the mines and torpedoes could be disposed of. For many weeks, as assistant naval constructor with the fleet, I had been studying the elements of strength and weakness in our own vessels and the vessels of the enemy, particularly from the standpoint of stability and fire service in battle, and I had made special reports to the admiral upon each vessel. This investiga-

tion showed that our vessels were particularly weak before torpedo or mine attack. In fact, the *New York*, the *Wilmington*, and the *Helena* were about the only vessels of the admiral's squadron that could stand a single torpedo blow, and these vessels were among those least adapted for standing the fire of fortifications. The vessels best adapted for running fortifications, the monitors, would sink like a shot under the blow of a torpedo.

This fact had been emphasized during the action at San Juan, Porto Rico, on May 12. It became evident, after three hours' bombardment, that the fortifications could not be reduced at ranges above two thousand yards, and could be reduced at short ranges only after heavy loss. It appeared to me that the best method of reducing San Juan was to run by the fortifications into the harbor. The entrance was of course mined, and it was reported, on good authority, that a vessel had been sunk in such a way as to leave only a narrow space for passage, this narrow space itself being heavily mined. Soon after the bombardment I had reported to the admiral on a method of going in, asking to be allowed to take two steam-launches with volunteer crews, to start about midnight, and slip in close under the shore through the neck from the westward, and then come out by the main channel, dragging it, sweeping the mines, and locating sunken vessels, the exit of the launches to be followed by the entrance of the armored vessels. The admiral had listened to the proposition kindly and apparently with approval, but had replied that until the enemy's fleet was met he could not risk even a single vessel, and that, under the conditions, it was evident that the sweeping of the channel could be only partial at best.

### "UNSINKABLES" FOR HAVANA.

I THEN had set to work on the problem of disposing of torpedoes otherwise. The result

<sup>1</sup> Lieutenant Hobson's narrative will be continued in two future papers, treating respectively of the manoeuvre at the entrance of Santiago harbor, and of the captivity and return of the crew of the *Merrimac*.—EDITOR.



was the outline design of a craft specially constructed to be unsinkable, having the general form of an iron canal-boat, with its own motive power, and rendered unsinkable by being stowed with air-tight cans a foot long, and made indestructible by special arrangements in construction and by the use of wire cables. I had elaborated a plan for the use of five such unsinkable craft, to precede the fleet in entering the harbor of Havana. As the construction and preparation of the unsinkables would require six weeks or two months, I thought it best to make report of my plan to the admiral before the departure from Key West. I did so on May 29.

#### ADMIRAL SAMPSON ANNOUNCES HIS PURPOSE.

AFTER listening with kindly attention to the plans, the admiral said that at the time it was not a question of how to make a vessel unsinkable while entering an enemy's harbor protected by mines, torpedoes, and artillery, but how to make a vessel sink in an enemy's harbor, and make her sink swiftly and surely; that it was "not a question of an unsinkable, but of a sinkable"; not a question of Havana, but of Santiago; and that at a subsequent date he would consider the question of unsinkables.

He then confided to me that he was about to start for Santiago, where Admiral Cervera's fleet had taken refuge, and that he intended to sink a collier in the channel, stating that he had, indeed, already ordered the commanding officer off Santiago to sink such a collier, naming the *Merrimac*, which was then on the south side of Cuba, but scarcely expected to find it done, though the order had been sent by the *New Orleans*.

He then asked how an iron ship could be scuttled and made to sink quickly. After thinking over the question for some time I replied, in effect, that there seemed to be two effective methods, one to drive off bottom plates from the inside, and the other to explode a series of torpedoes placed advantageously on the outside. We

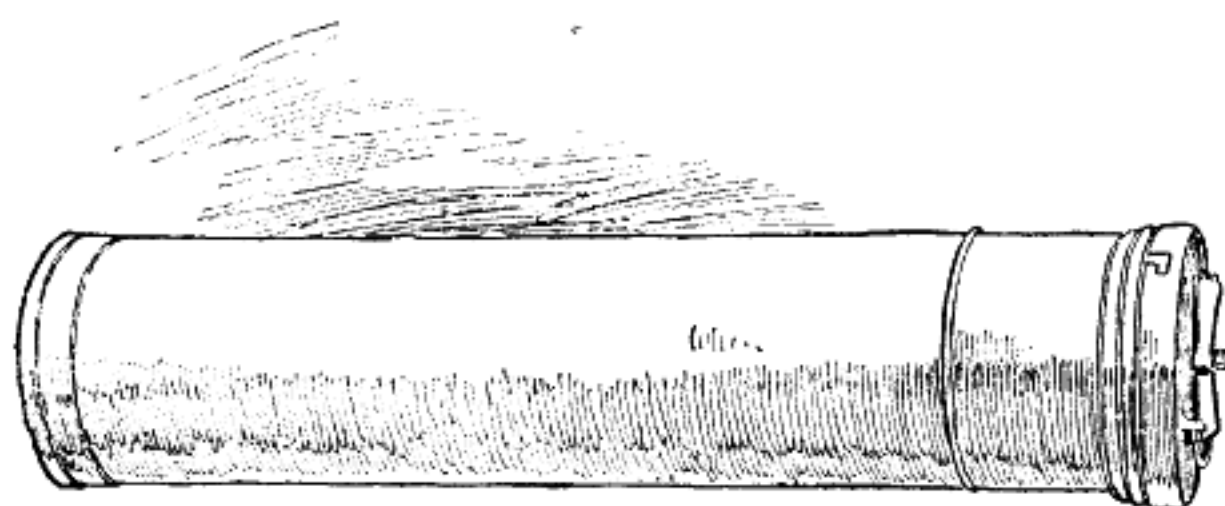
examined the chart of the harbor together, and I expressed full confidence in the practicability of putting the vessel into the channel, and stated that I should be happy to be allowed to endeavor to carry out the work. The admiral then instructed me to study the question in detail and report to him. This was on the morning of May 29. I studied the subject during the afternoon and evening, and thought about it during the night. We got under way about midnight, and stood to the southward, the *Oregon* having already left. We were off Havana early in the morning, were joined by the *Oregon* and the *Mayflower*, and stood to the eastward at full speed.

My study included the complete plans, the choice of circumstances, and the navigation and manœuvering of the vessel, as well as the method of sinking her. All these features were reported upon, and the plans being approved by the admiral, preliminary preparations were begun on the 30th.

#### THE PLAN OF FEIGNING A CHASE—WHY DISCARDED.

VARIOUS plans were considered. That of feigning a chase suggested itself from the fact that Spanish colliers were supposed to be on their way to Santiago. One had recently been captured by the *St. Paul*, and from her it was learned that others were soon expected. By this method the *Merrimac* would approach by night from the eastward; when about five miles away she would be discovered by blockading vessels, search-lights would be thrown toward her, and fire opened, care being taken to fire wide and throw the lights in front and on the sides, to show the splash of striking projectiles.

The *Merrimac*, upon discovery, would bear in toward the shore to within about two thousand yards, apparently to seek the shelter of batteries; she would throw pitch on the fires to make heavy black smoke, as if forcing to the utmost. She would head in toward the entrance and turn full down the course for entering the channel, blowing her whistle in



DRAWN BY GEORGE VARIAN.

SHAPE OF THE TORPEDOES USED TO SINK THE "MERRIMAC."



blasts as of fright and distress. The search-light would flash across and show a Spanish flag at her peak. On approaching, the lights would be thrown on the entrance to facilitate her navigation, but carefully avoiding resting upon her. The shore batteries opening on the chasing vessels would be replied to and kept diverted. If they opened on the *Merrimac*, search-lights would be thrown in the gunners' faces.

However, an examination of the chart showed the difficulties of navigation to be so great that no sane captain would attempt to take in a collier at night or under circumstances that did not admit of the utmost deliberation. It was known that tugs were used by single-screw vessels of any size on account of the turn in the channel abreast Estrella Point. (See map, page 271.) The chances seemed to be against the enemy's being deceived, and navigation depending upon search-lights would entail chances of failure.

#### THE PLAN OF STEALING IN ADOPTED.

THIS plan, and various other plans involving the coöperation of the fleet, were discarded in favor of the simpler plan of going in alone by moonlight, just before the moon should set. Surprise, under any condition, could be only partial at best, since a certain amount of light was absolutely necessary for navigation. The conditions for surprise would be more favorable toward daybreak. Moreover, a flood-tide must be chosen, so that, in case of breaking the anchor gear, the vessel would be set into the channel and have ample time for sinking before the ebb could tend to throw her out, while the chances of being carried by the tide through the whole length of the narrow channel into the inner harbor were very small. The "establishment of the port," or time of high tide, was about eight hours and a quarter, so that the tide would be running strong flood as the moon set. The moon was then approaching full, and calculations showed that it would set at Santiago about half-past three on Thursday, June 2. We were speeding at about thirteen knots,—the *Oregon* had demonstrated her ability to maintain that speed,—and we would therefore arrive off Santiago early Wednesday morning and have most of the day and night of Wednesday for preparations. Thursday was therefore set for entering, though the admiral expressed the opinion that it would be found impossible to complete the preparations in time. The special advantage of Thursday was that there would be an interval of dark-

ness of about an hour and a quarter between the time of moonset and daybreak, while on Friday this interval would be reduced to about half an hour, and on Saturday day would break before moonset. It will be understood that an interval of darkness, though short, might be found of advantage for completing the work or for making escape.

Preparations were therefore begun at once, the greatest amount of detail being required for the process of sinking.

#### TWO METHODS OF SINKING THE COLLIER.

INVESTIGATION had shown that the two methods of sinking the vessel that first suggested themselves were the only ones practicable—that of driving off bottom plates by forces applied inside, and that of using a series of torpedoes on the outside. Both of these methods were reported on to the admiral, my recommendation being in favor of the torpedo method.

The method of driving off bottom plates consisted in selecting six plates in advantageous positions along the length, about twelve to fifteen feet below the water-line, cutting off all rivet-heads on the inside, leaving the plates simply held in place, then placing a small improvised cannon near the center of each plate, with cross-bars to distribute the force of the explosion and cause the plate to be blown off whole in each case, instead of merely causing a hole to be blown through it. This improvised cannon was to be nothing more than a short length of nine-inch piping, containing black powder, rammed tight, and held by a strut carried up to the deck-beam above, with wedges under the heel, the powder being fired at will by an ordinary electric primer.

It was explained to the admiral that the cutting off of rivet-heads would be difficult under the circumstances and would involve two, if not three, days' delay; in consequence only the torpedo method was practicable for Thursday or Friday. The latter method, therefore, was the one adopted.

The torpedo method was to arrange ten torpedoes on the port side, placed outside abreast the bulkheads and the cargo hatches so as to give the maximum sinking effect to a breach opened up by each, the torpedoes being carried by a fore-and-aft belt-line extending along the outside from end to end about twelve feet below water, each torpedo, in addition, having a hogging-line, or girth-line, extending around underneath the keel, for holding the torpedo in its place. The pur-



pose of the fore-and-aft belt-line was to take up the strain due to resistance in the water.

#### THE TORPEDOES.

THE form of torpedo selected, after considering all the forms available under the circumstances, was the simple eight-inch charge in its own can or tank, to be fired by its own electric primer. The use of guncotton, placed inside as well as out, was duly considered and discarded. Various difficulties were encountered in the preparation of the torpedoes, important among which was the arrangement for insuring water-tightness in connection with the admission of the wire cable through the can or tank for the purpose of firing. The charge selected was what is known as the reduced charge, being about seventy-eight pounds of brown prismatic powder, this quantity being large compared with the quantities used effectively for torpedoes in previous warfare. The eight-inch charge was made up of two parts in serge sack or bags, as shown on page 269. The tank was as long as the tank for the full charge, and this left the requisite amount of space for arranging for water-tightness. The charge for the torpedo was arranged to be fired by the electric primer, carried in a small bag of four pounds of quick black powder, this bag being in the center between the two charges, as indicated in the sketch, the insulated wire cable passing from the primer through the mouth of the small sack, and up along and outside of one of the charges.

On top of the upper charge were placed two white-pine disks, seven eighths of an inch in thickness, fitting the can more or less tightly, each disk having a hole in the cen-

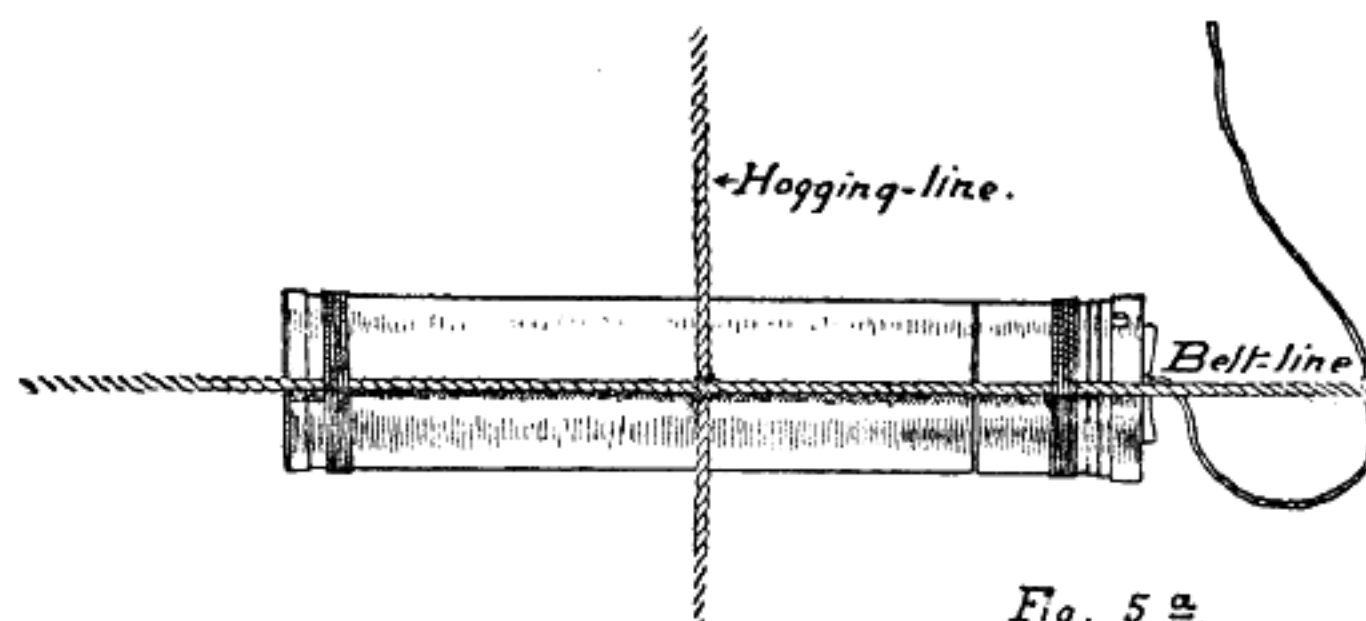
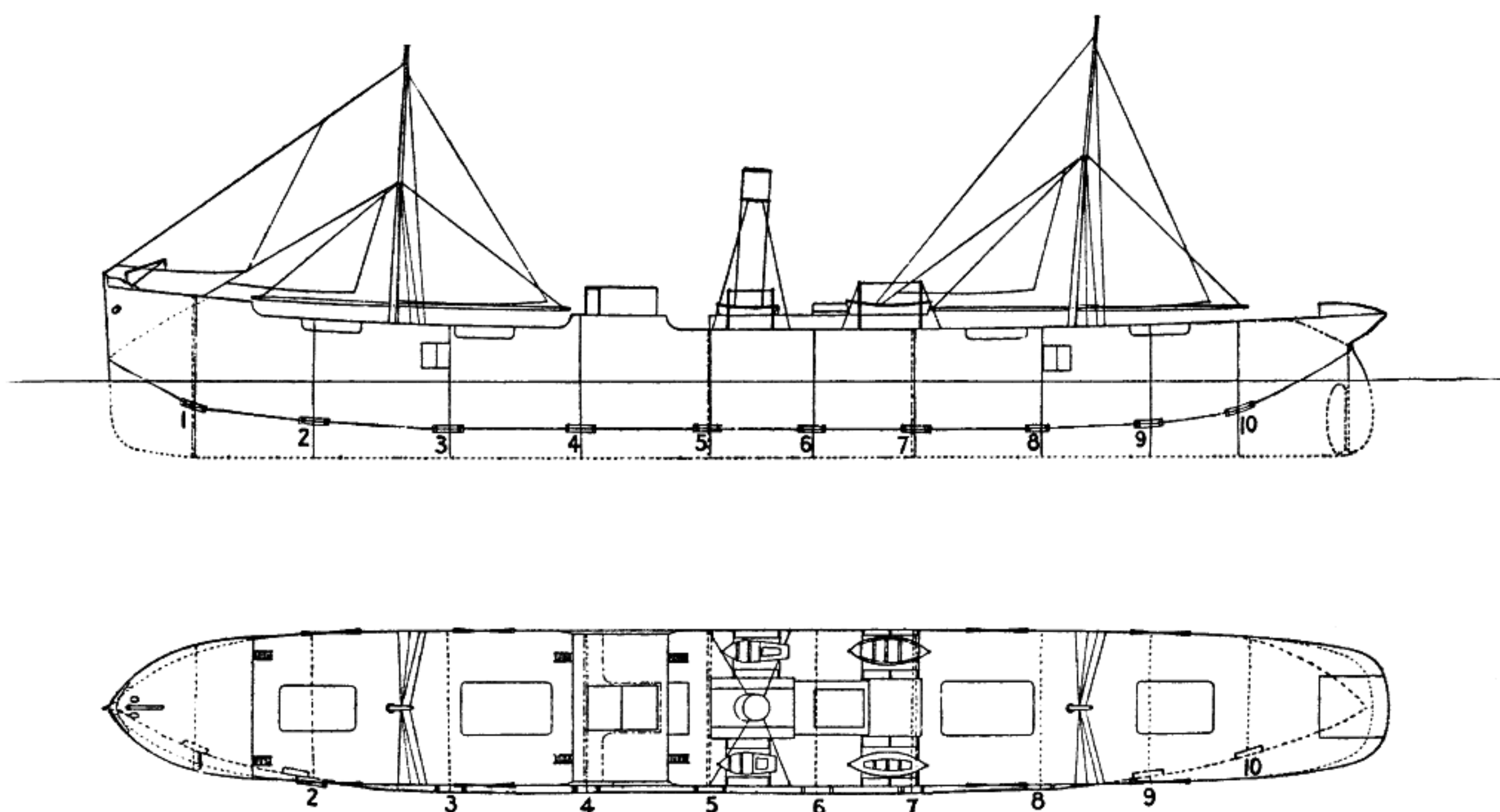


Fig. 5 a

DIAGRAM SHOWING THE ATTACHMENT OF THE TORPEDOES TO THE BELT-LINE AND THE HOGGING-LINE.

ter for the passage of the wire cable. On top of these disks, and for a depth of about nine inches of the can, was poured hot a gummy substance made up of pitch and tallow, which, while warm, would close all openings and make a substance entirely water-tight, and which, in hardening, would still be pliable and spongy and not easily cracked, acting also as additional insulation for the wire cable passing through it. Care was taken to examine whether this pitch composition, poured in hot, would burn the insulation off the wire; but no difficulty of the sort was met with.

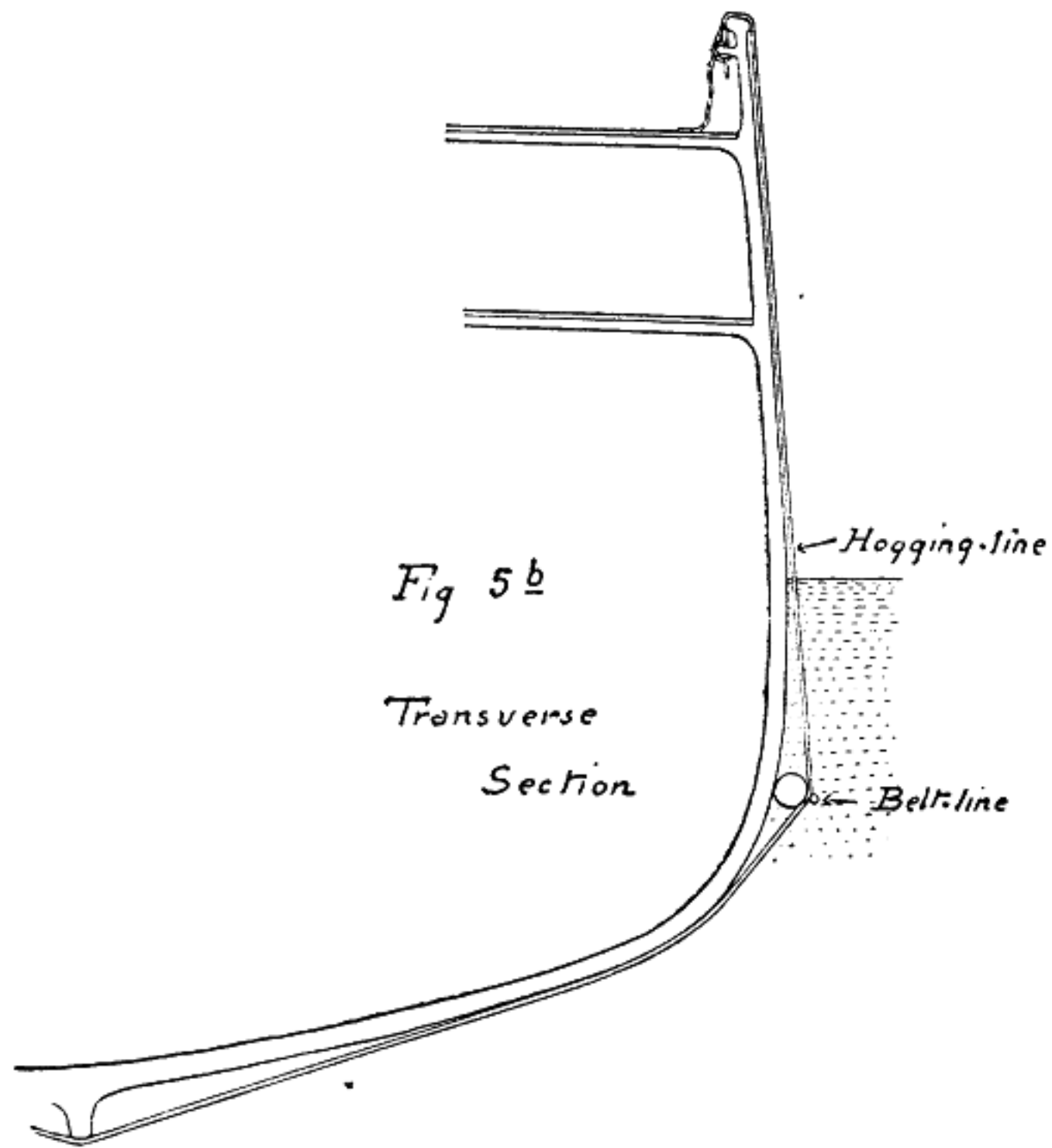
The question of making the cans water-tight had been the subject of a conference with the admiral, in which he had first suggested the use of paraffin; but not having paraffin on board, the mixture of tallow and pitch was decided upon, with the addition of



CONTEMPLATED ARRANGEMENT OF THE TORPEDOES ON THE PORT SIDE. (SEE PAGE 269.)



gum from rubber gaskets intermingled, if it were found necessary to reduce the brittleness. The top of the tank was left the same as usual, only a hole large enough to admit



TRANSVERSE SECTION OF THE "MERRIMAC," SHOWING POSITION OF THE BELT-LINE HOLDING THE TORPEDOES AND OF THE HOGGING-LINE.

of the passage of the cable was drilled in the center. At the bottom of the can was a short thickness of mineral wool.

The preparation of the torpedoes was begun at once, Gunner Morgan of the *New York* and the gunner's gang being detailed for its execution.

#### ARRANGEMENT OF THE TORPEDOES.

THE torpedoes, ten in number, were to be secured on the port side at the points determined upon for producing the maximum sinking effect, being held by the belt-line, extending entirely around the vessel from forward aft at a depth of about twelve feet below the water, as above mentioned, the torpedoes lying lengthwise along this belt-line, as indicated above. The wire-cable end or head of the torpedo was pointed aft, in order to reduce the chances of leakage, the eddy created by the torpedo reducing the water-pressure at the hole. In addition, as was mentioned above, each torpedo had a hogging- or girth-line extending completely around the ship, by which the tor-

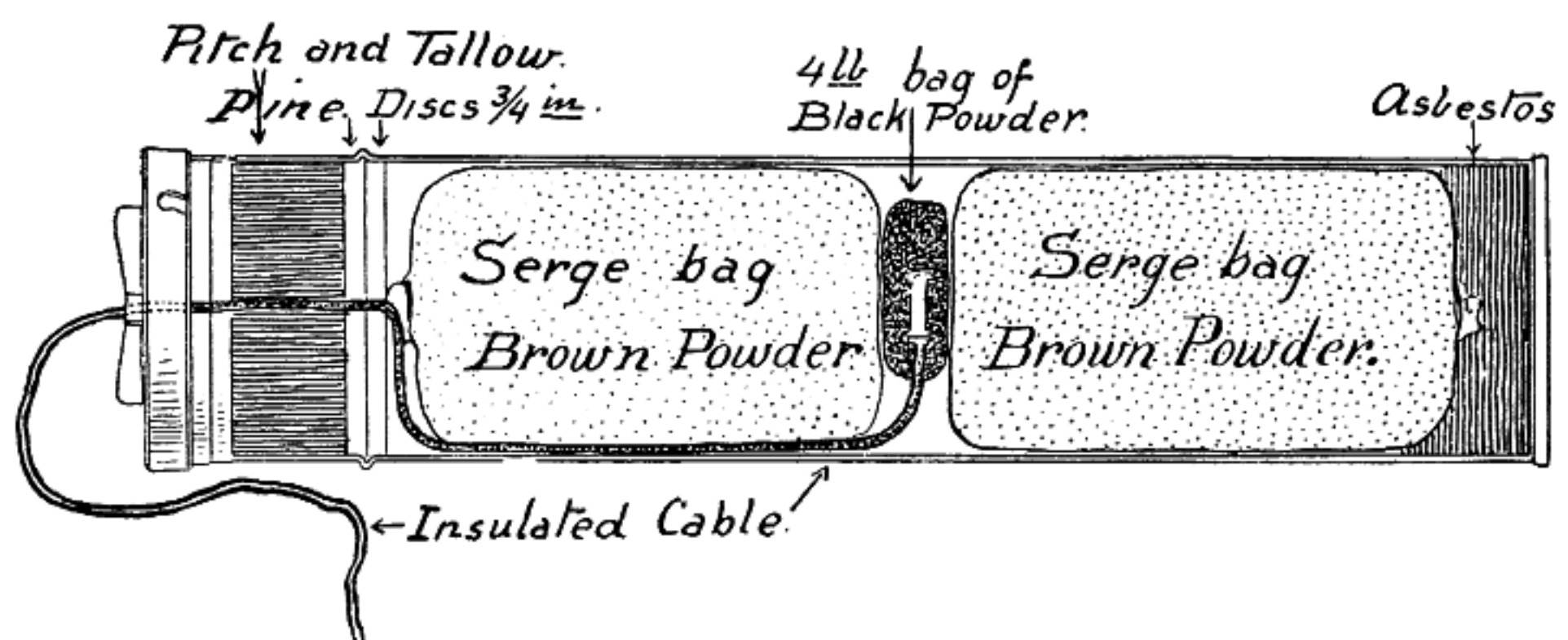
pedo was kept close in to the side and at the proper depth. Two lashings in addition were placed near the ends of each torpedo, securing it more tightly to the belt-line. Torpedo No. 1 was abreast the collision bulkhead, No. 2 abreast the forward cargo hatch, No. 3 abreast the large space forward of the boiler-room, No. 4 abreast the forward boiler-room bulkhead, No. 5 abreast the forward engine-room bulkhead, and so on from forward aft, the positions being chosen, as has already been stated, so as to give the maximum sinking effect. All were placed on the port side, because, in turning with the port helm, it would be the forward side, so to speak, making the inrush of water more rapid than would be the case on the starboard side. At the same time, the fact that all the torpedoes were on the same side would cause a list to port, making the water reach more quickly the level of the cargo ports, and would tend in every way to cause the sinking to be more rapid, while the vessel, being without longitudinal bulkheads, would right herself finally as she went under in deep water. Besides, the crew would abandon the ship from the starboard side.

#### THE FIRING OF THE TORPEDOES.

THE cables from all the torpedoes were led up to the bridge, and from this position all were to be exploded simultaneously at a given moment.

With a view to affording an additional guaranty of sinking, the sea connections were to be prepared for opening, and all apertures forward and aft were to be opened—all doors, hatches, and manholes on the inside, and the cargo ports in the sides.

The question of firing the torpedoes involved a serious difficulty. Signals were made



SECTIONAL DRAWING OF THE TORPEDOES.

to the *Oregon* and the *Mayflower*, accompanying us, for an electric machine; but neither of these vessels had such a machine, nor did we have one on board the *New York*. It was evident that unless we should find that some



vessel of Commodore Schley's Flying Squadron had such a machine, it would be necessary to fire by batteries, which are particularly fragile; and in such case it was decided to increase the number of cells far beyond the ordinary number required to fire the primers. The questions of wiring and of the amount of cable required careful attention.

These details of the program were approved by the admiral. There was one feature, however, which he did not grant. It seemed to me that there was an element of weakness in the firing of the torpedoes. The number of torpedoes had been fixed at ten, which at first sight would seem excessive. I estimated that if all of them went off the vessel would sink in a minute and a quarter. This number was made large because of the innate weakness of the firing arrangements and the probability of injury before the time for firing. I requested the admiral to allow me to take in addition two war-heads from the torpedoes on the *New York* and place them inside the *Merrimac*, abreast the two most important bulkheads, leading their connections up inside, where they could not be injured by the enemy's fire, thus having at hand at all times a positive means of instantly sinking the ship. When these war-heads were asked for the admiral pondered a moment and then said: "No, I cannot let you have them; two hundred pounds of guncotton on the inside would blow everything to the devil." Those who know the uniformly temperate language of the admiral will understand the emphasis of this reply.

#### THE GENERAL PLAN OF THE MANŒUVER.

THE parts of the program pertaining to navigation had been studied in connection with the chart of the harbor and the pilotage publications. The difficulties of navigation were of even greater consequence than those associated with the sinking of the vessel. Referring to the map, it will be seen that the entrance is very narrow, and that the shoal water on the left, near the course of the channel, would cause a failure to enter with the slightest deviation or error. Once entered, however, the conditions of the long, narrow channel were favorable for obstruction for some distance. It would therefore be necessary to have the vessel pointed fair, with sufficient speed at the entrance to insure complete control with the helm. The length of the *Merrimac* was about 333 feet, and the width of the channel ranged

from 350 to 450 feet in the narrow portions. It would be necessary, therefore, after swinging the vessel athwart the channel, to catch and hold her in this position. The depth of the channel varied from about five fathoms to ten or eleven fathoms; the vessel would draw about seventeen feet, and the most advantageous position for swinging was carefully chosen. There being only a short distance in which to overcome the speed of the vessel, special elastic arrangements would be necessary to enable the anchor gear to check and absorb the speed, so as to catch and hold the vessel in the athwart position. To realize this elasticity, and at the same time to enable the anchor and chain to work automatically, the chain would be roused up out of the lockers and ranged along the deck. After running out a certain length the chain would begin to break elastic-rope stops, one end of the stop being made fast to the chain, the other to a long rope hawser of larger size, so that each stop before breaking would bring into play the elasticity of the large hawser, which itself would be finally broken.

The manœuver decided upon and approved by the admiral was to approach at full speed, stopping a short distance from the entrance, so that the speed on arriving at the point for the final manœuver would be about from four and a half to five knots. At this point the helm would be put hard aport. As soon as the ship began to swing, the starboard bow-anchor would be let go with sixty fathoms of chain; when in a second position farther in, the starboard stern-anchor would be let drop with forty fathoms of chain, the two permitting the ship to take the desired position, where she would be lying on a span directly athwart. Any additional motion still remaining would be absorbed by the vessel sticking her nose into the shoal on the right side of the channel. If the stern anchor-chain were carried away the movement would cause the vessel to throw her port quarter into the shoal on the port side, the bank being only one and a quarter fathoms deep.

#### OTHER DETAILS.

THE general plan contemplated a minimum crew of volunteers for its execution, with the simplest form of duty for each member to perform. The anchors were to be slung over the sides and held by simple lashings, ready to be cut with an ax, a man being stationed at each anchor. Only two men were to be kept below, one in the engine-room and one







each man, after completing his duty, was to jump overboard and get into the boat.

The torpedoes were to be fired at the moment when all was secure and the ship had reached her position athwart the channel. They were to be fired from the bridge. After firing them, I was to jump overboard and join the boat, which would then be ready to pull away, the crew having all had time to reach it.

The boat was to be fitted with life-preservers under the bulwarks and thwarts to prevent sinking when riddled. It was to carry seven rifles, and seven belts with one hundred and fifty cartridges in each.

The uniform was to consist of woolen underwear and two pairs of socks, each man having on a life-preserver, and a revolver-belt with a revolver and a box of cartridges, the cartridges being immersed in tallow.

If I should not appear after the explosion, the boat was to pull away in charge of the senior petty officer present. If the boat were interfered with, it should give account of itself while endeavoring to escape. If destroyed, a rendezvous was fixed on the bank under the Morro, just inside the cove, from which an effort would be made, by creeping along the bank and swimming at the steep parts, to make our way around and well to the eastward of the entrance before putting to sea to try to reach the squadron. In all cases the party would endeavor to keep together and act as a unit.

The question of volunteers being referred to, the admiral expressed the belief that there would be no difficulty in getting the men wanted.

#### ARRIVAL AT SANTIAGO AND RECONNOITERING.

By Tuesday afternoon all the preparations that could be made beforehand were well under way. The three vessels were speeding onward along the north shore of Cuba. It is a fine coast, with mountains rising straight up from the sea. No wind was stirring, and the clouds hung motionless on the mountain-sides. The sky was preparing a weird sunset, remarkable even for the tropics, and the water reflected the weirdness.

The spirit of mystery over land and sea and air and sky extended to the sounds. Even the regular bugle-call to quarters and evening prayers appeared different. All nature seemed to be preparing tragedy. The enemy was near. The time for action in our sacred cause was close at hand. I lingered on deck. The moon rose bright and clear, approaching

its full. Because of singular coincidences in the past I had come to associate important changes with the filling moon. On the ships sped. Cape Maisi light appeared in the distance and drew aft till it lay abeam. We changed our course to the southward, and standing down the Windward Passage, passed close to the land, and caught whiffs of the tropical vegetation. The moon was near its meridian as the vessels rounded the southeastern end of Cuba. To-morrow we should see the sun rise on Santiago.

All hands were up early, and as we went out on deck we made out the Flying Squadron ahead in the distance. As the *New York* stood down toward the *Brooklyn*, there, off the starboard bow, stood the Morro, frowning down on the narrow entrance; back in the distance rose the mountains beyond the city. From aloft we could see the military tops of the *Vizcaya* and the *Cristobal Colon*, behind the cliffs of Cay Smith and Punta Gorda Neck. As the *New York* passed the bearing in line with the inner channel, a shot came out at long range, apparently from the *Vizcaya*. It fell short, of course, but it spoke challenge and defiance, with perhaps a tinge of irritation.

We passed the *Merrimac*, lying to the eastward, locked with the *Massachusetts* coaling alongside, and stopped near the *Brooklyn*. Commodore Schley and his flag-lieutenant came off, and were met by the admiral and his chief of staff and flag-lieutenant, and all went below to the admiral's cabin. Soon the admiral and the commodore came on deck, and the admiral called me aft. The commodore pointed out the location of batteries as he had brought them out in the bombardment of the previous day. The sea batteries to the eastward and westward of the entrance could be made out, though dimly, but the batteries described by the commodore as lying on the slope of La Socapa, the west bank of the channel, could not be located. The galleries and gunports of Morro could be seen, but Estrella Point and the heights of Charrucca and Punta Gorda necks were obscured. I asked for a steam-launch to go in closer to reconnoiter, but my request was declined. After the commodore left, the *New York* stood farther to the westward to get on the bearing, Estrella Point, north, 34° E., the course for entering. The admiral, the chief of staff, the navigator, and I then went up on the forward bridge. There was a division of opinion as to what was really Estrella Point. It was then decided to let me take the steam-launch and go in for reconnoitering. The launch was hoisted out and fired



were lighted. The quartermaster reported the masts and funnel of a small craft behind a neck of land to the westward. The *New* not completed, and work seemed to be going on. All question about Estrella Point disappeared, and I found two good ranges on the



FROM A PHOTOGRAPH BY ROCKWOOD.

LIEUTENANT RICHMOND PEARSON HOBSON.

*York* dropped the launch and stood down to investigate the craft, which proved to be one of our auxiliaries.

When steam was up on the launch we headed in, though we were delayed by the feed-pump getting out of order. We soon were able to make out distinctly the batteries to the eastward of Morro, and those to the westward of the entrance. They were

mountains behind to help in running in, and mentally photographed the view, noting specially the high points that would facilitate recognizing the entrance at night. We avoided some objects awash that looked as though they might be range-buoys, but stood for the most part straight up the course for entering.

This course leads nearer the western shore,



and one of the crew reported seeing men in the bushes, and then a rifle-bullet passed overhead. The launch was slowed down, and directions were given to have a full head of steam, with plenty of water in the boiler, in order to be independent of the laboring feed-pump, and the cockswain was ordered to stand by to go about.

One of the crew now reported a signal flying from the *New York*, which had come back; it was the general recall. I had desired to find out something about the batteries on the slopes of La Socapa, and to get some sure mark on the western side to guide in entering at night. It soon became evident, however, that the batteries on the slopes could not be seen without actually entering, while the bushes came down to the water's edge on the west, and no mark for guidance could be found. Only the Morro side would be distinct, and the course to pass would have to be regulated by estimating the distance from the Morro. Fortunately, on this side the water was deep, and would permit of passage close aboard. The launch turned and stood out slowly, and when well away went full speed for the *New York*. It was now nearly noon. The *Merrimac* had drifted farther to the eastward. Signal had been sent to all the vessels calling for an electric machine for firing torpedoes, and the torpedoes were well in hand; but half the day was gone, and no preparations had been made on the *Merrimac*.

#### INSPECTING THE "MERRIMAC."

THE *New York* stood back at speed, and shortly after noon stopped near by. Boat-swain Mullen and I went off in a pulling-boat, and crossed over the *Massachusetts* to the *Merrimac*; coaling was going on at all the hatches. The officers of the *Merrimac* were at luncheon, the captain and other officers forming a single mess. Everybody was completely surprised when I announced the purpose of the admiral to have the *Merrimac* sunk in the channel that night, and I was pelted with questions.

Coaling was to continue; the *Merrimac's* crew were already more or less fatigued, and as they would have their hands full in getting their effects away, could give but little, if any, assistance. I made a rapid inspection: the anchors weighed fourteen thousand pounds; the hold contained about twenty-three hundred tons of coal, which lay heaped up against some of the bulkheads where the torpedoes would be placed. A signal was sent to the *New York* to send over one watch,

or half her deck force, and forty coal-heavers, the deck force to be employed in preparing the anchors, chains, belt- and hogging-lines, the coal-heavers to shovel the coal away from the sides at the points of location of the torpedoes, to prevent interference with their action in blowing in the sides and to prevent the clogging of the ruptures.

While waiting for the men from the *New York*, the boatswain and I went below and located the bulkheads, taking tape-measure distances to fix their positions accurately on the outside. Assistant Engineer Crank went with me through the boiler- and engine-rooms, and agreed to the use of part of his own force to do the work of preparing the sea connections for flooding and of opening up the cargo ports and all openings throughout. When all the work was done, we were to go through for final inspection.

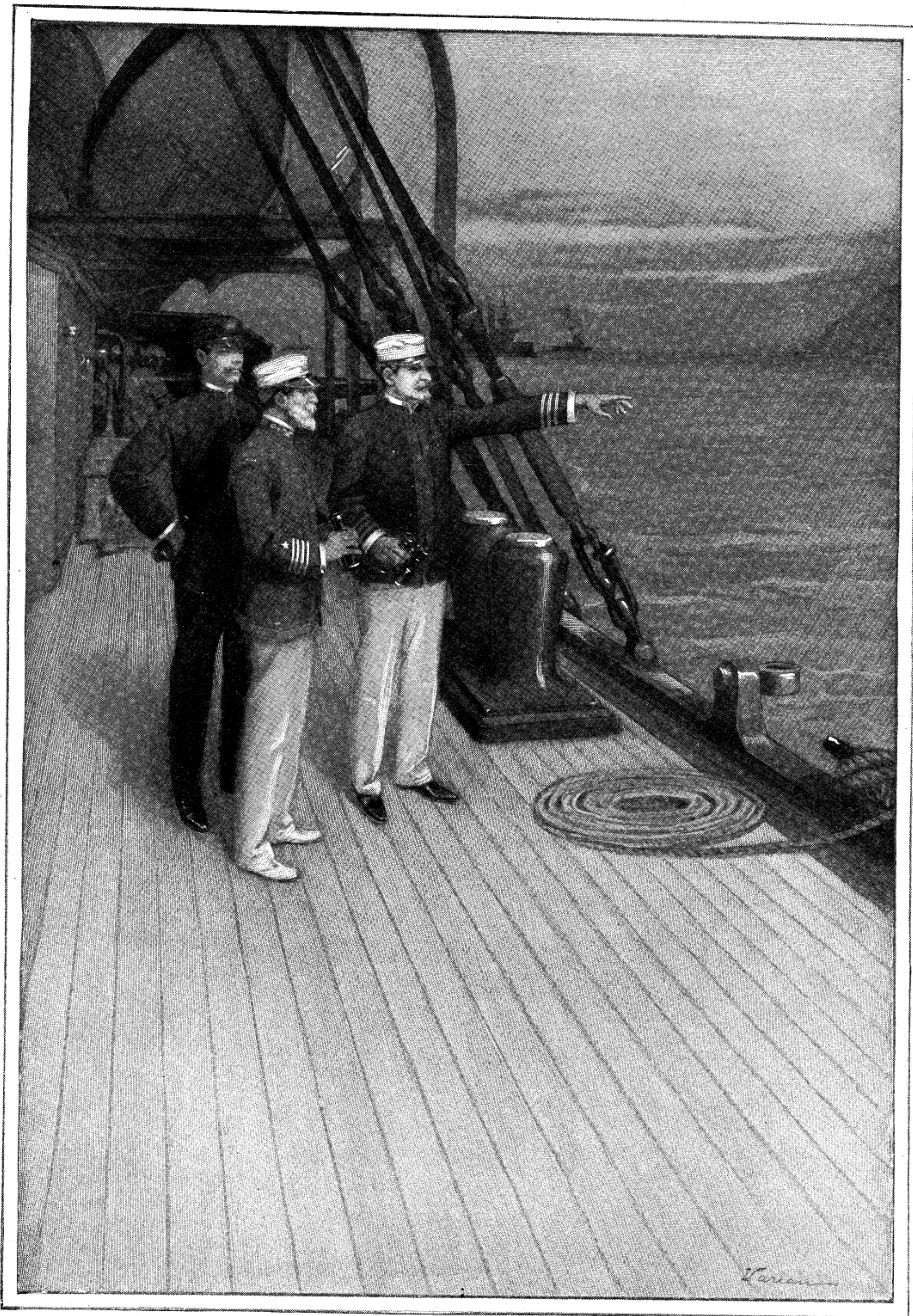
The preparation of anchors and chains, belt- and hogging-lines, was explained in full to the boatswain. The starboard chain was to be roused up and ranged along the fore-castle; the starboard anchor to be got over the bow; the port anchor to be unshackled and transported aft to the starboard quarter, the port chain being similarly transported; the bow anchor to have sixty fathoms clear, and the stern anchor about forty fathoms, the last fifteen fathoms to have the stops for breaking.

We went into the forehold to look for gear, and found plenty in the *Merrimac's* supply. We selected eight-inch new Manila for the long lengths of elastic hawser, and five-inch new Manila for the stops; a large coil of new four-and-a-half inch Manila would answer admirably for the belt-line and eighteen-thread stuff for the hogging-lines. As we expected the stripping of the ship to begin soon, we set this gear aside to prevent its falling into the hands of some boatswain's mate or other provident pillager.

When I returned to the *New York* to see about the question of personnel and the status of torpedoes, the starboard watch from the *New York* had come over under Naval Cadet Boone, and forty coal-heavers were on their way from the *Brooklyn*. Captain Miller had given directions to the officers and crew of the *Merrimac* to prepare for leaving the ship, and was himself leaving to go to see the admiral.

In reply to the signal for an electric machine, a negative answer had come from all ships. There was not one in the squadron. It seemed a coincidence that the vessels that

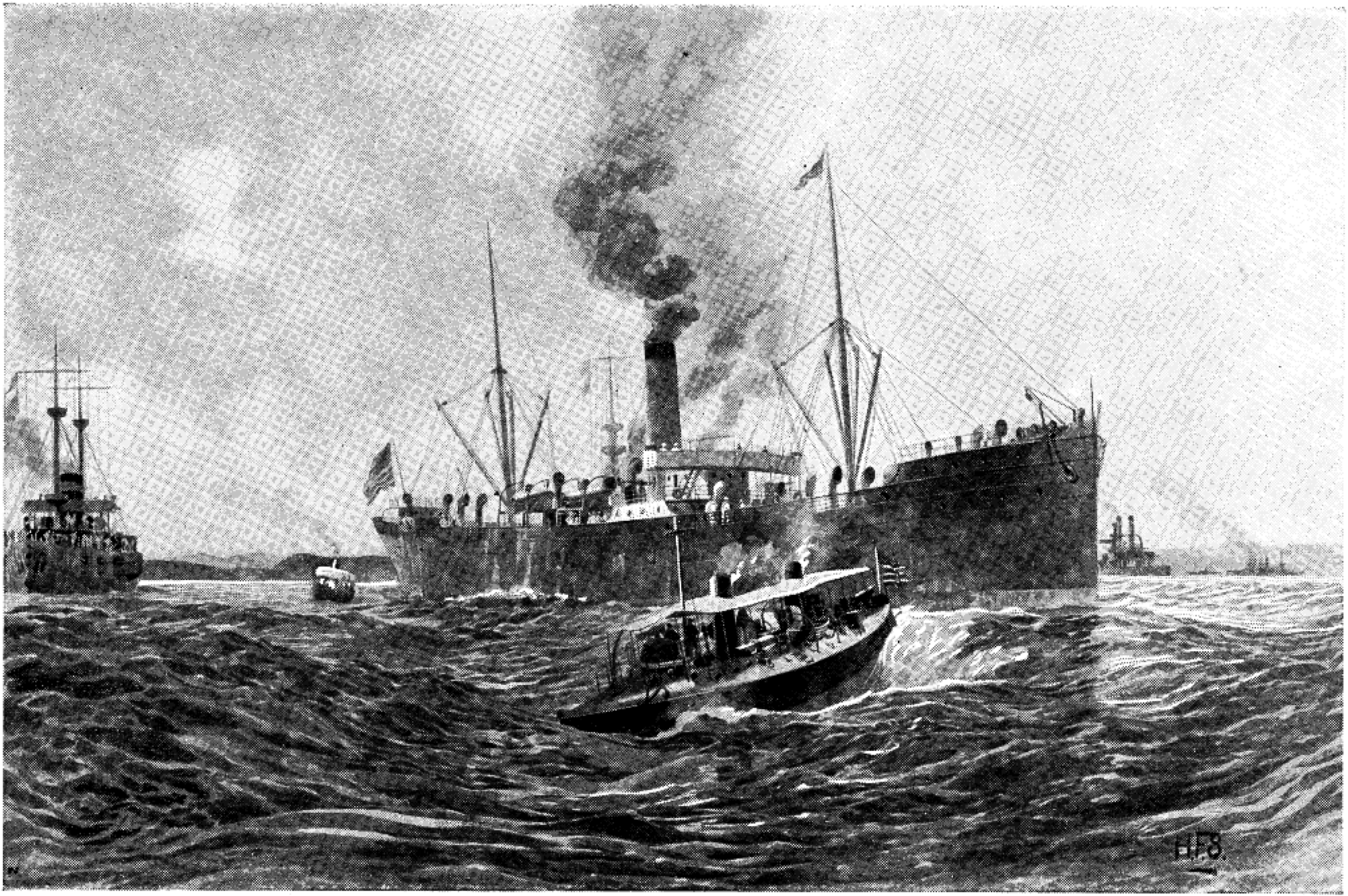




DRAWN BY GEORGE VARIAN.

ADMIRAL SAMPSON, COMMODORE SCHLEY, AND LIEUTENANT HOBSON INSPECTING  
THE SANTIAGO ENTRANCE FROM THE DECK OF THE "NEW YORK."





DRAWN BY HOWARD F. SPRAGUE.

THE "MERRIMAC" AS A COLLIER AMONG THE FLEET.

were known to have them were all north of Cuba. Batteries of cells would have to be depended on. The *New York* had only a few spare firing-cells. The fleet was called upon. I requested Lieutenant Roller to take the matter in hand, get together the cells, allowing three or four times the number usually required for the eight-inch primers, arrange the cells for maximum efficiency, test all the cable for insulation, and actually fire trial primers under the conditions of use.

#### HUNDREDS OF VOLUNTEERS.

WHILE I was on the *Merrimac*, Assistant Engineer Crank had expressed a wish to go in with the ship, and had recommended a machinist and a water-tender, Phillips and Kelly, who had shown themselves competent and reliable, and who wished to go. Captain Miller, who expected to go in, had spoken in high terms of his quartermaster and cockswain, young Deignan. There was advantage in having men for the wheel, the engines, and the boilers from the *Merrimac's* crew, on account of their familiarity with the particular vessel; so I called the three men up, looked at them well, explained the nature of the mission, and asked if they wished to go. All replied affirmatively, so I decided to take them.

The call for volunteers had been made by signal, and names were pouring in by the

hundred. It may be said broadly that the bulk of the fleet was anxious to go. The admiral had thought that perhaps it might be well to have a junior officer, and had asked for volunteers from the junior officers of the *New York*. The junior officers' mess responded en masse. Powell, one of my pupils at the Naval Academy, was on deck when I came on board, and begged me to take him. Eggert, another of my pupils, saw me, and pleaded to go. Men of the *New York's* crew pressed upon me and used all kinds of arguments to persuade me to take them. It was as though a great favor were being asked and every means must be taken to have it granted.

Captain Miller had now returned to the *Merrimac*. When I was about to leave, the admiral sent for me and said that Captain Miller claimed it as his right as commanding officer of the vessel to go in with the *Merrimac*, and that he did not see how his claim could be disregarded. My answer was in effect that I should be happy to serve in any capacity, but that it must be evident to all that Captain Miller could not be anything but a passenger, even if nominally in command, being entirely unfamiliar with the details of the plans, while it was, of course, too late in the day to become properly acquainted with them; that I had carefully reduced the crew to a minimum, and had made the duties the very simplest, and felt it would be unjustifiable, even wrong, to allow a single



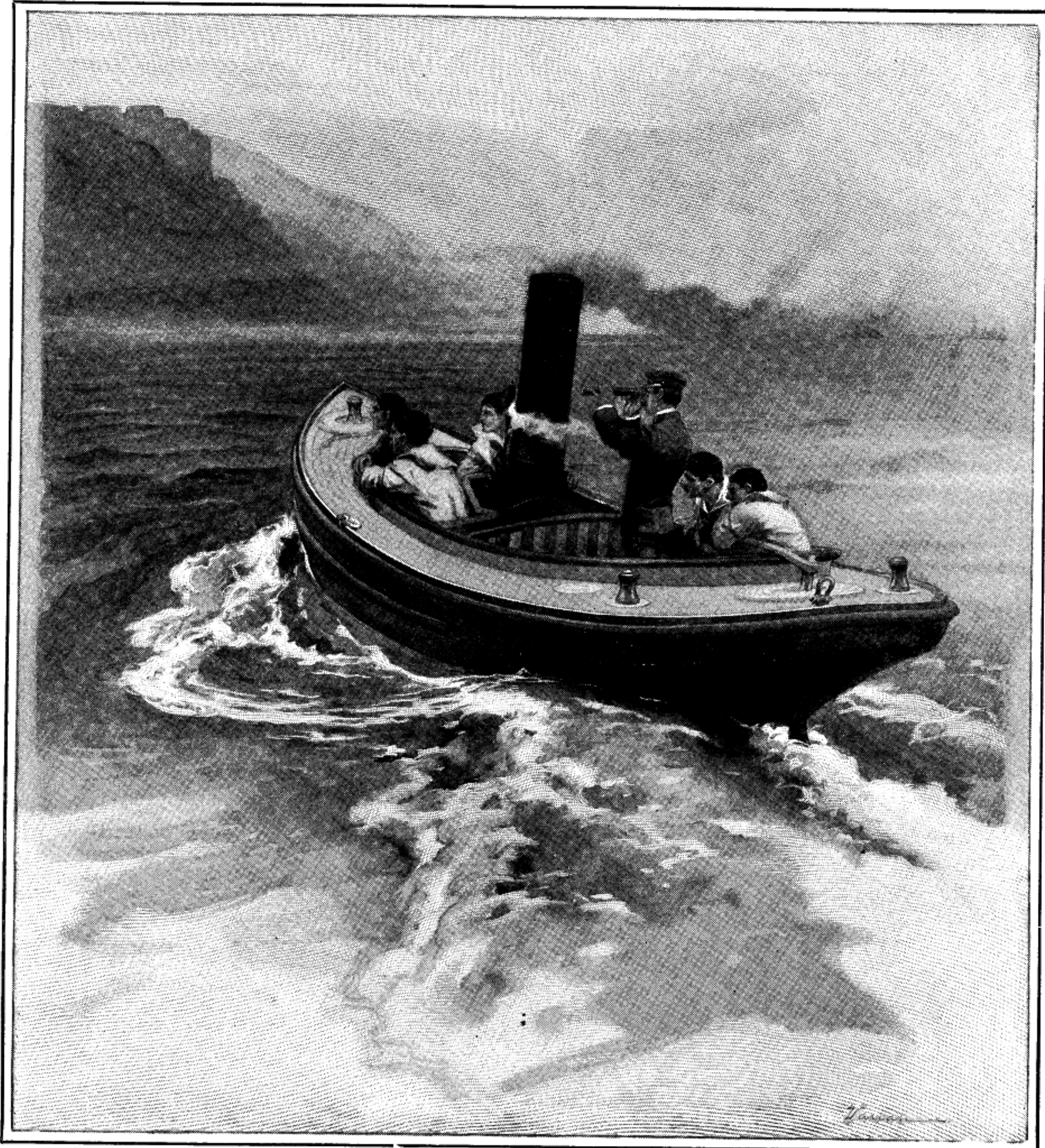
man in excess of the requirements, and for this reason had refused the junior officers and all others; that, besides other considerations, we should all certainly be overboard; that my men should be young, athletic, and used to exposure; that probably no one of the age of a commander would be equal to the physical strain; that if there should be a chance to escape we should certainly not abandon the captain, and his presence would probably entail the loss of all; that when the situation was clear to the captain he surely would not insist on going, however great his desire, as he could not really consider it right or his duty to go. The admiral concluded that he would not allow the captain to go.

It was understood with the executive officer of the *New York*, who was handling the list of volunteers, that word would be sent as to the men to be selected.

## CHAOS ON THE "MERRIMAC."

I THEN left the *New York*, with the understanding that notice would be sent when all was ready on the *Merrimac*, whereupon the admiral would go on board to inspect.

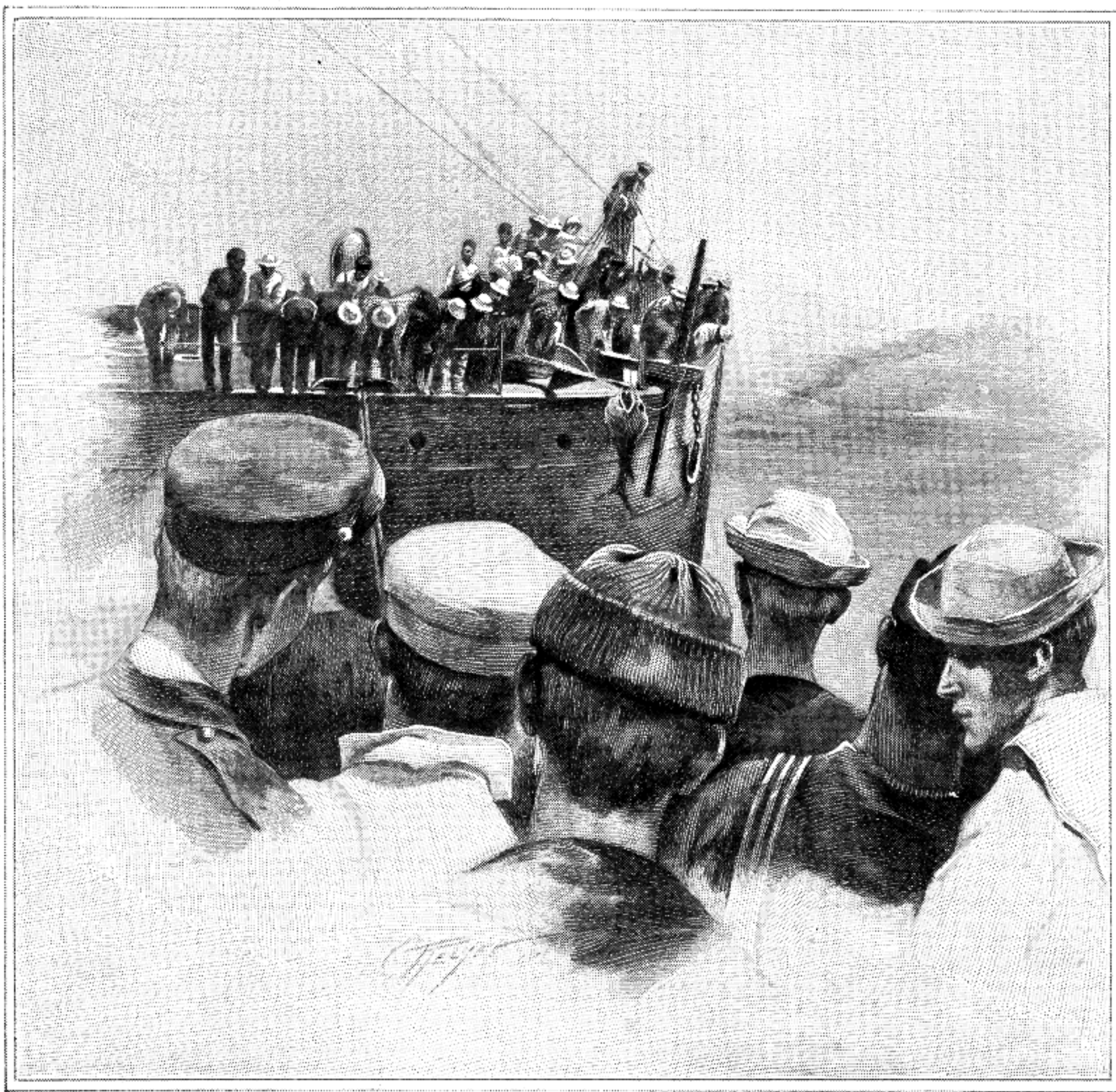
Matters on the *New York* detained me, and the afternoon had worn well along when I reached the *Merrimac*. The conditions on board can hardly be conceived. Orders had been given to strip the ship, and only a few hours remained in which to do it. Squads from different vessels were everywhere removing articles. The crew of the *Merrimac* were looking to their own effects. The gangways were piled with boxes, cans, and debris of all kinds. A barrel of beer had gotten adrift. To my horror, the port bower-chain had not been unshackled; the boatswain and his gang were still at work



DRAWN BY GEORGE VARIAN.

LIEUTENANT HOBSON RECONNOITERING THE HARBOR ENTRANCE.





DRAWN BY C. M. RELYEA, FROM A PHOTOGRAPH TAKEN ON THE "TEXAS."

THE "MERRIMAC" COALING THE "TEXAS" AT SEA. THE SAILORS HOISTING IN A SHARK AT THE BOW.

on it, and still it resisted; the starboard anchor and chain were still untouched. The coal-heavers, misunderstanding the instructions given, had been shoveling coal from port to starboard. Men in the stripping squads were everywhere in the way. It was impossible to tell who belonged to the working squads and who did not. Utter confusion existed, and under the circumstances would admit of but slight remedy. Even the gear laid aside for belt- and hogging-lines, stops, and hawsers, had been pillaged. It was evidently to be a desperate fight against time.

#### TROUBLE WITH ANCHORS AND CHAINS.

THE idea of getting the fourteen-thousand-pound anchor aft had to be abandoned, but there was a heavy stream-anchor already aft and another forward. We slung the one forward from the cargo boom to the deck of the *Massachusetts*, which dropped aft; then we took it up with a cargo boom aft, and proceeded to lash the two stream-anchors together, crown to ring, or tandem fashion, which would give the two combined as great holding-power as the heavier bower-anchor.

When we started rousing up the starboard chain, the anchor windlass worked badly. Soon the port anchor-chain was unshackled, and it was apparent that the heaviest work would come in getting the chain aft; for the fifteen-fathom lengths could not be unshackled, as the shackle-pins could not be driven out; so the heavy chain, the very largest size manufactured, would have to be transported aft in one piece the whole length of the ship.

To save time, we started rousing this chain up without stopping the rousing up of the starboard chain. The windlass utterly rebelled. About thirty fathoms of the latter chain were already up, and it started back by the run into the locker. It was fairly heart-rending to see the chain go charging back, undoing the results of such hard work. More than half had run back before it could be checked. The port chain would have to wait till the starboard chain was completely up. The sun was setting before the heavier work could be begun, when finally the chain started up, and after getting aft as far as the deck-house, would not budge farther. I appealed to all the men from all the gangs. They took hold, some with their



hands, some with the chain-hooks, some with ropes' ends. The chain started up, but soon stopped again. No effort could make it move a second time. Darkness was setting in. The search for lanterns showed that the strippers had preceded us in the lamp-room; only two or three lanterns, and those in bad shape, could be found. The men were nearly exhausted, having been working without relief and without supper. We turned steam on the after-winches, determined to make them haul the chain aft, but no tackles could be found; all had been taken off. We used part of the coil for belt-line, and after breaking it several times finally started the chain, and this measure gave promise of getting the required amount aft in course of time.

## FINAL PREPARATIONS UNDER DIFFICULTIES.

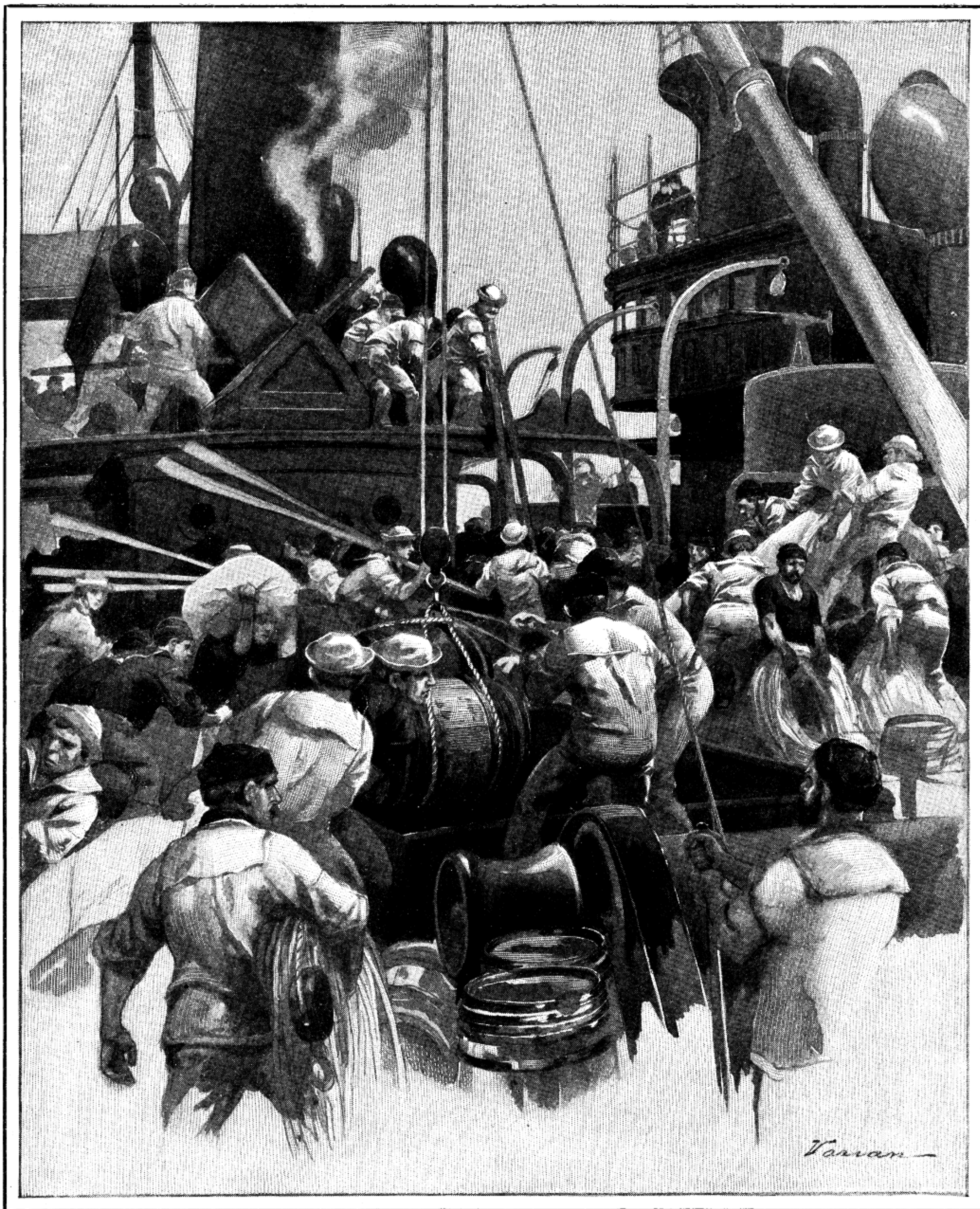
HOGGING-LINES had been started by means of a weight put over the bow in a span of the line, carrying it below the keel, a man on each side walking aft outside of everything till the desired point was reached. As bad fortune would have it, the lines already put over became entangled, and nearly all had to be hauled in, and the work done over. Moreover, the strippers having got to the gear laid aside, as mentioned above, the stuff for hogging-lines was found to be missing. In fact, the hawsers were just being started over the side, and the coil for the belt-line was on deck, when we caught and saved them. So material for the hogging-lines had



DRAWN BY GEORGE VARIAN.

HAULING THE ANCHOR-CHAIN TO THE STERN.





DRAWN BY GEORGE VARIAN.

#### STRIPPING THE "MERRIMAC."

to be improvised by unreeving tackles from the cargo booms and by searching among the debris. The *Massachusetts*, after transporting the stream-anchor aft, had shoved off, and with her departure the stripping abated. Now only a squad from the *Texas* and the force from the *Brooklyn* remained, besides the men from the *New York*. The *New York* hailed, and said she would send off the port watch to relieve the starboard watch. We had been drifting steadily to the

eastward; the *Texas* and the *Brooklyn* were not in sight. The coal-heavers could do no more work in the darkness below, so the two squads were sent to the *New York* with the *New York's* starboard watch when the port watch came off. The steam-launch had brought off the gunner, with the torpedoes, batteries, and wire, and some dynamo-men were sent for to help in running the wires. It was dark, for the moon was obscured, and we had little lantern-light; but the men just arrived were



fresh, and the interfering groups were gone, so we could work with more organization.

Cadet Boone took a squad and started the belt-line, and when the belt-line was around at the height of the rail, where the torpedoes were to be attached, he continued with the same men to get the hogging-lines in place.

Assistant Engineer Crank had been at work with his men below, and now reported the cargo ports opened and the sea connections prepared, all ready for inspection. I went below with him and found things in excellent shape; the nuts were off the bonnet of the main injection, a strut held the bonnet in place, and it required only a blow to knock the strut out and release the bonnet, which was under a head of about fifteen feet of water-pressure. The smaller connections and also the condenser discharge, which went overboard below the water-line, would be readily cut in two by the blow of an ax. All openings, hatches, manhole covers, etc., were opened. At Mr. Crank's suggestion we had already admitted about seven hundred tons of water to the double bottom. Ensign Luby of the *Merrimac*, who had been lending a hand during the day, took charge of the stern anchors. As soon as these should be lashed together and slung over the side, and the chain bent on and ranged clear, the boatswain was to take the most of the men to get the bower-anchor over and put on the stops and hawsers. The gunner and his own men and the dynamo-men were leading the wires to the positions on the rail, ready to connect with the short lengths coming out of the torpedoes. The torpedoes were to be attached the last thing, and secured to belt-line and hogging-lines at the height of the rail, where it was intended they should remain for inspection by the admiral.

I had hoped to report the vessel ready by midnight, but this hope had been early abandoned. Toward ten or eleven o'clock the different tasks were advancing along together, and there seemed to be a fighting chance of being ready before moonset, when the gunner reported an insufficient quantity of wire; a mistake had been made in the quantity first reported and supposed to be at hand. The *New York* had remained near us, and I hailed for her steam-launch and went on board, but no wire was to be found. The vessels of the squadron were out of sight, but a Norwegian steamer, fitted out for cable service, lay at a distance. I ran down to her in the launch. She did not have what we wanted, but had any quantity of an insu-

lated wire that would answer. We took a coil, and came back by the *New York* for items of which a memorandum had been left, such as life-preservers, boat equipment, signal-cord, new axes for cutting the anchor lashings, seizing stuff for securing the torpedoes, an ensign, etc.

#### THE "MERRIMAC'S" FLAG.

WITH regard to the ensign, I had asked Captain Miller about the ensign of the *Merrimac*. He said that he had already considered the matter, but had found that the strippers had taken off the ensign and the contents of the signal-chest, and even the signal-halyards. In fact, the men had been so keen for relics and souvenirs, that nothing seemed to have escaped. He said that he had, however, an enormous flag, blue field, or background, with "Maine" across it in large letters, which he proposed to have bent on. But I was particularly anxious for a large national flag, and put it down on the list of items for the executive officer to get us on the *New York*. I was a little afraid they would not let us have the flag, so I asked the executive officer not to say anything about it to the captain until we were gone, and told him that I should not hoist it while running in, or while doing so could in any way affect the success of the effort, but that I did wish very much to hoist it after firing the torpedoes, as the vessel sank. The executive officer was not convinced, and his instinct of the risk involved was true; for though the captain let me have the flag without asking any questions, and it was bent on the halyards at the bridge ready for hoisting, it was never hoisted, for after the work was done, and the *Merrimac* was sinking, and a strong impulse set in to have the flag flying, it was clear, lying at the muzzles of the enemy's guns, that any movement to hoist it would betray our position and cost the life of all. Responsibility for the group forbade the attempt.

#### TRIAL TRIP AND INSPECTION.

BEFORE leaving the *New York* the captain said that we had drifted twelve or fifteen miles to the eastward. It was then nearly twelve o'clock, and it was necessary to start to the westward without delay. The admiral had ordered the *Mayflower* and one of the other vessels to place themselves on a range with the course, with the harbor for a starting-point.

The admiral was to come off to inspect



with the boats that came to take off the men to the *New York*. Montague, the only member of the volunteer crew not already on board, came off with me.

While on the *Merrimac*, Mullen, the boatswain, had asked to go. As the letting go of the bow anchor would be especially perilous, with the running out of the chain and the breaking of stops and hawsers, and no one would appreciate the danger better than the boatswain, he was accepted.

About the same time, Charette came to me and said that he had put down his name with the volunteers before leaving the *New York*, and he hoped I would take him, for he had served with me when I was a midshipman on the *Chicago*. I remembered his service well, and good service it was. He had been in the dynamo-room, and was afterward gunner's mate, and was the very man to help with the torpedoes and be at hand for anything that might arise. This left only one more man to choose—the man to cut the lashing of the stern anchor. There would be advantage in having a man who could best handle the men in case Mullen and I did not appear. After consultation with the executive officer of the *New York*, Montague, the chief master-at-arms of that vessel, was selected, and the crew was complete.

It was about midnight when the launch reached the *Merrimac*. After discharging, it was sent back to the *New York*, and preparations were made for getting under way. It had been arranged that we should have a trial spin before going in. Mr. Crank would remain in charge of the engines till the last moment, having a good head of steam and everything in shape. The run to the westward would answer for the trial, and directions were given for a full-speed run, at the highest safe and sure speed. We were under way by half-past twelve, and stood to the westward, making fifty-two revolutions, approaching nine knots. The *New York* stood on also, but was soon left behind. She had the steam-launch in tow, and apparently could not tow it faster without losing it.

The last few hours had seen large progress all along the line. The stern anchor was over the side, and the chain was being bent on and ranged clear. It was so situated that in coming under strain it would tear the bulwarks out, tear up the hatch-coaming, and bring up against the mainmast. With the length of chain extending to the chain-lockers at the bow, large elasticity would be realized. The bower-anchor was over the bow, slung and lashed; breaking-stops were being

put on, eight stops between forty fathoms and sixty fathoms; and the hawser was in place. It was not practicable to take the hawser over the deck-house, as it was only about seventy-five feet long; so another of the same length was added, both to be broken at sixty fathoms, before the rigidity of the anchor fastenings should "bring up"; one of the hawsers carried the stops, which were far enough apart to allow the hawser to spring back and recover its elasticity after each strain. The belt-line was around and at the height of the rail; the hogging-lines were in place. The gunner reported that at the final test on the *New York* the battery could fire only six primers. The six most important positions were selected, and the torpedoes were secured in place while the wiring went on.

A mist had come over the moon. The coast-line was obscure. A heavy black cloud appeared in the southeast, and the horizon was thickening to the south and southwest, and began to threaten the last hours of the moon. Soon the *New York* was out of sight; apparently she was making only five or six knots. Captain Miller was sitting on the bridge; Deignan was at the wheel; the ship replied well to the helm, and the gallant captain told about her steering and manœuvering qualities, and other virtues, still expecting to go in with his ship. He had let me take complete charge, and I had not thought it necessary to tell him of the admiral's final decision.

The light became so dim that the headlands could scarcely be made out with the night-glasses. About two o'clock a craft was sighted ahead, then another, on a southwesterly line of bearing with the first. We concluded that they must be the range vessels; so the helm was put up, and we stood out, to turn upon their line of bearing from seaward, keeping on the range, in readiness for the start after the *New York* should arrive. One of the craft began to show up an intermittent light; was it a private signal? I had not been notified of any signal to expect from a range vessel, and gave no reply, but kept pointed in toward the craft.

It seemed as though the *New York* had lost us. It must have been nearly three o'clock before her boats came alongside and the admiral came on board. It had been decided, with the short time remaining, not to wait for his inspection of the torpedoes, and the hogging-lines had been hauled down; the last ones aft were being hauled down when



he came on board and inspected. He said he thought we were well out, probably five or six miles, so I asked that the torpedo-boat should go and find out what the unknown craft were. When it returned it reported that they were vessels belonging to the press. The one that had showed the light was perhaps simply a little timid, with an idea of being run down.

The admiral carefully inspected the anchor and chain aft and on the forecastle. Everything was in readiness for letting go—blocks under the lashings, with axes at hand. The wiring was complete and responded to the test, the firing ends being on the starboard side of the bridge, ready to make contact. Montague and Charette had led off the signal-cords, and, with the boatswain, had got the life-boat out and put in the arms and equipment. The boatswain considered that the boat in question would tow better alongside than astern, a long line being got out from forward, another from abreast the boat. When the after hogging-lines were hauled home, the *New York's* men were ordered into the boats. Before leaving, Cadet Boone asked earnestly to be allowed to remain, but he had to be refused like the others. The admiral went on the bridge to wait till the men were off, and was the last to leave. On coming on board, the admiral had gone up on the bridge, and as he spoke to Captain Miller, I heard an exclamation of disappointment from the latter.

Though bitterly disappointed, the generous captain came up to say a kind word and wish us success. Assistant Engineer Crank, who was still in the engine-room, was to remain on board till the last stretch, when he was to be taken off by the torpedo-boat that would accompany us to that point.

#### THE FIRST ATTEMPT—OFF AT LAST.

THE moon had now gone behind a bank rising up from the horizon; it must have been beyond its setting-time before the admiral left. When I had referred to the lack of light and the obscurity of the coast-line, the admiral gave reassurance as to the conditions when we should be closer, based on the principle that the intensity of light varies inversely as the square of the distance. But the absolute necessity of adequate light had been growing on me.

The admiral said good-by with a simple word of kindness. With us who knew him,

such a word from Admiral Sampson would outweigh a volume.

When the launch shoved off with the admiral, its propeller fouled one of our lines, and it must have been half an hour in clearing. It must, indeed, have been after four o'clock when we finally started. Dawn had not tinged the east, but it was certainly near at hand. We started up slowly, then at full speed. The life-boat charged out from the side, ready to capsize. We slowed down and shortened the breast-line. As we started ahead again, it charged back and forth as before. It was evident that the boat could not be towed at full speed. Time was pressing, and it had been questionable from the first if there would be a chance to use the boat. We must approach at full speed for success. So I decided not to slow down again. The boat plunged back and forth, then with a wide sheer capsized and broke adrift, floating away bottom up.

We were now clear. The men, stripped to underclothes, put on revolvers and belts and life-preservers, took their stations, and tied the signal-cords to their wrists. Soon the vessels of the squadron showed up, rather to the eastward; then we caught the outline of the Morro itself. There was only a short distance to stand to the westward to make the course for entering, north, 34° E. A rose tinge appeared in the east; day was breaking. We should find ample light to enter by.

#### THE RECALL AND POSTPONEMENT.

SUDDENLY a hail came from close aboard on the port side; the torpedo-boat, the *Porter*, came tearing up, and Lieutenant Fremont, her commander, announced that the admiral directed the *Merrimac* to return. It would not do to disobey; but would not the admiral reconsider? I knew that light was necessary in any case, and felt that we could make the entrance. My reply was a request to the lieutenant to return to the flagship and ask the admiral to let us go on, as I felt sure that we could make it. The *Merrimac* did not slacken. It was arranged that, in case the admiral consented, the torpedo-boat should have four red lights turned on the *New York's* signal-hoist. I told Charette to keep a lookout for the red lights, and we stood on. The torpedo-boat reached the flagship and started back at full speed. But no red lights appeared. The admiral was inexorable. We should have to wait another day.

(To be continued.)