

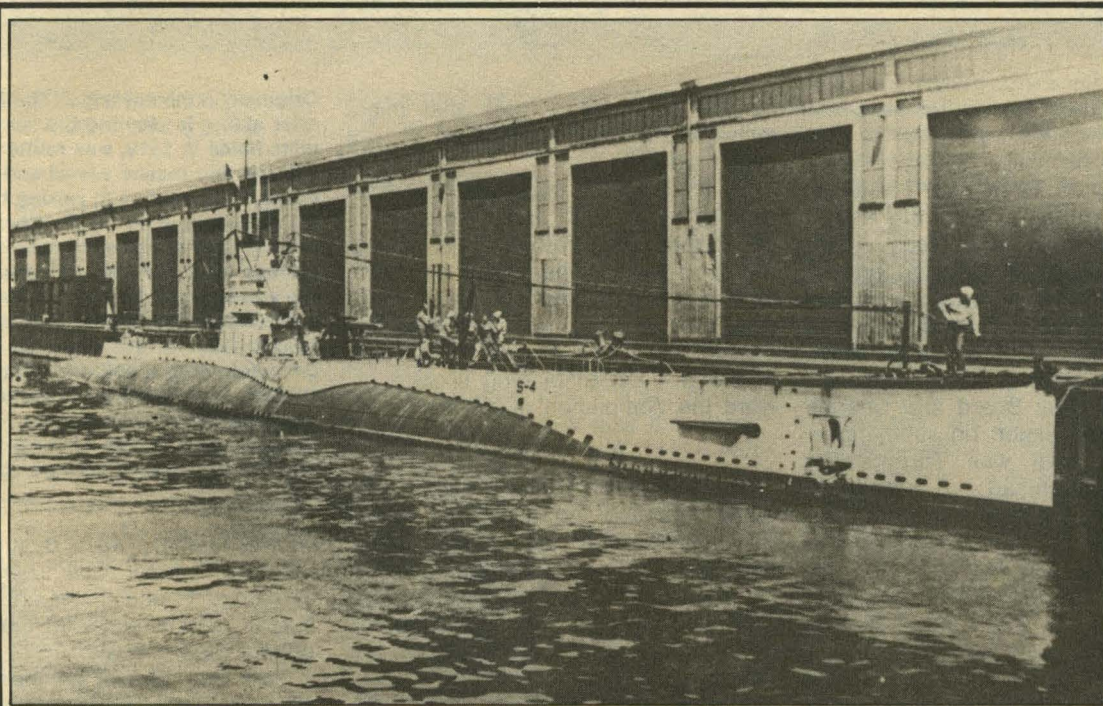
DISASTER OF THE S-4 SUBMARINE

By Robert H. Payden

Trapped when their submarine became a submerged coffin, the men of the S-4 clung to life for 2½ days while tapping messages to divers walking her deck.

The USS S-4 (SS-109). Her construction authorized by the Act of August 29, 1916, the S-4 was commissioned at the Portsmouth (N.H.) Navy Yard on 19 November 1919. Classed as an S-3 type coastal submarine, S-4 was 231 feet long, had a surface speed of 15 knots (11 knots submerged), and was fitted with four 21" torpedo tubes. In addition

to two observers aboard for the trial runs, at the time of her tragic accident the S-4 carried a complement of 4 officers and 34 men. After repair at the Charleston Navy Yard in 1928, the S-4 was recommissioned and operated out of Key West, New London, and Pearl Harbor. Decommissioned, she was struck from the Navy list in 1936.

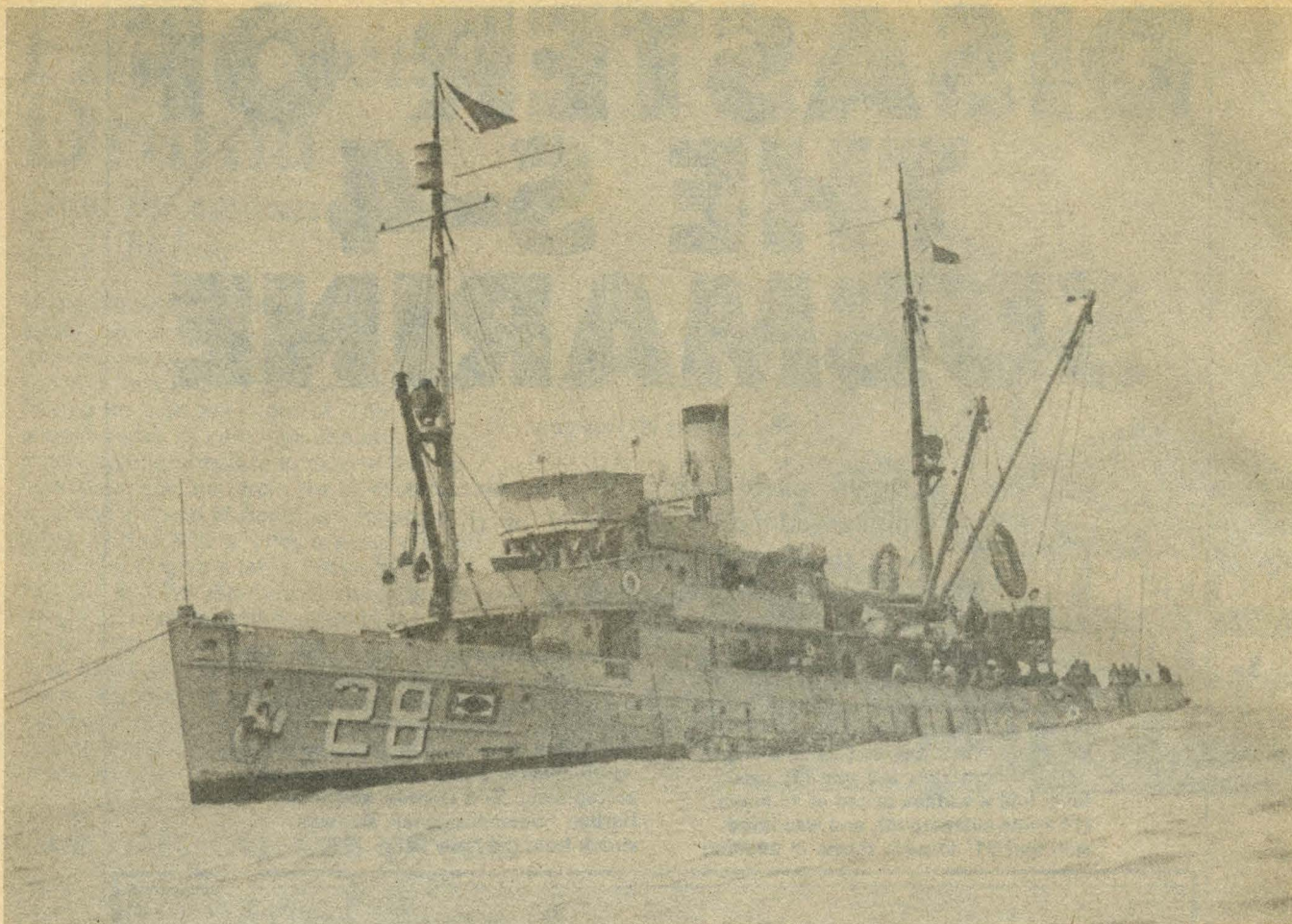


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Daylight broke over the tip of Cape Cod on December 17, 1927 with little indication of impending rough weather. However, by midday, storm signals were flying above the Coast Guard station at Race Point and the sky had taken on a cold and wintry look. It certainly was anything but excursion

weather, but to LCdr Roy K. Jones, skipper of the Submarine S-4, it was ideal for undergoing speed and maneuverability trials and so he had put out from Provincetown to run the measured mile course off Woods End.

Having recently undergone extensive refitting at the Portsmouth, New



Hampshire Navy Yard, after successfully completing the trial runs, the S-4 would again be ready for active service. Although of World War I vintage, she had been made one of the Navy's most serviceable underseas craft, with a complement of 4 officers and 34 men, the majority of whom were experienced submariners and proud of their ship. Also aboard for the tests were LCdr Calloway as an observer for the Navy Trial Board and Charles Ford, a civilian expert on submarines. Absent on leave was Torpedoman Leonard Schuchman of Newport, Rhode Island. Officers and crew were at their stations in the control and engine rooms, and the only men not directly involved in the trial runs were Lt(jg) Graham N. Fitch and five men in the torpedo room forward.

After running surfaced for a few miles, Jones ordered diving stations and the S-4 began her first run of the measured mile at periscope depth. To gain an accurate check on a comparison of engine revolutions with speed, diving angle, etc., a special device had been attached to an electric cable strung aft to the engine room and the propeller shaft. As usual, all doors between compartments were open. With both scopes up, Jones and his navigator, Lt Alfred McGinley, maintained a close sweep of the area

for the presence of craft that might come within the boundaries of the measured mile.

By 3:35, having completed the submerged runs, LCdr Jones housed his periscopes preparatory to surfacing. Although visibility had been considerably reduced by the spume whipped waters of the bay, no other craft appeared to be in the area as the bow of the S-4 began planing upward toward the completion of the tests.

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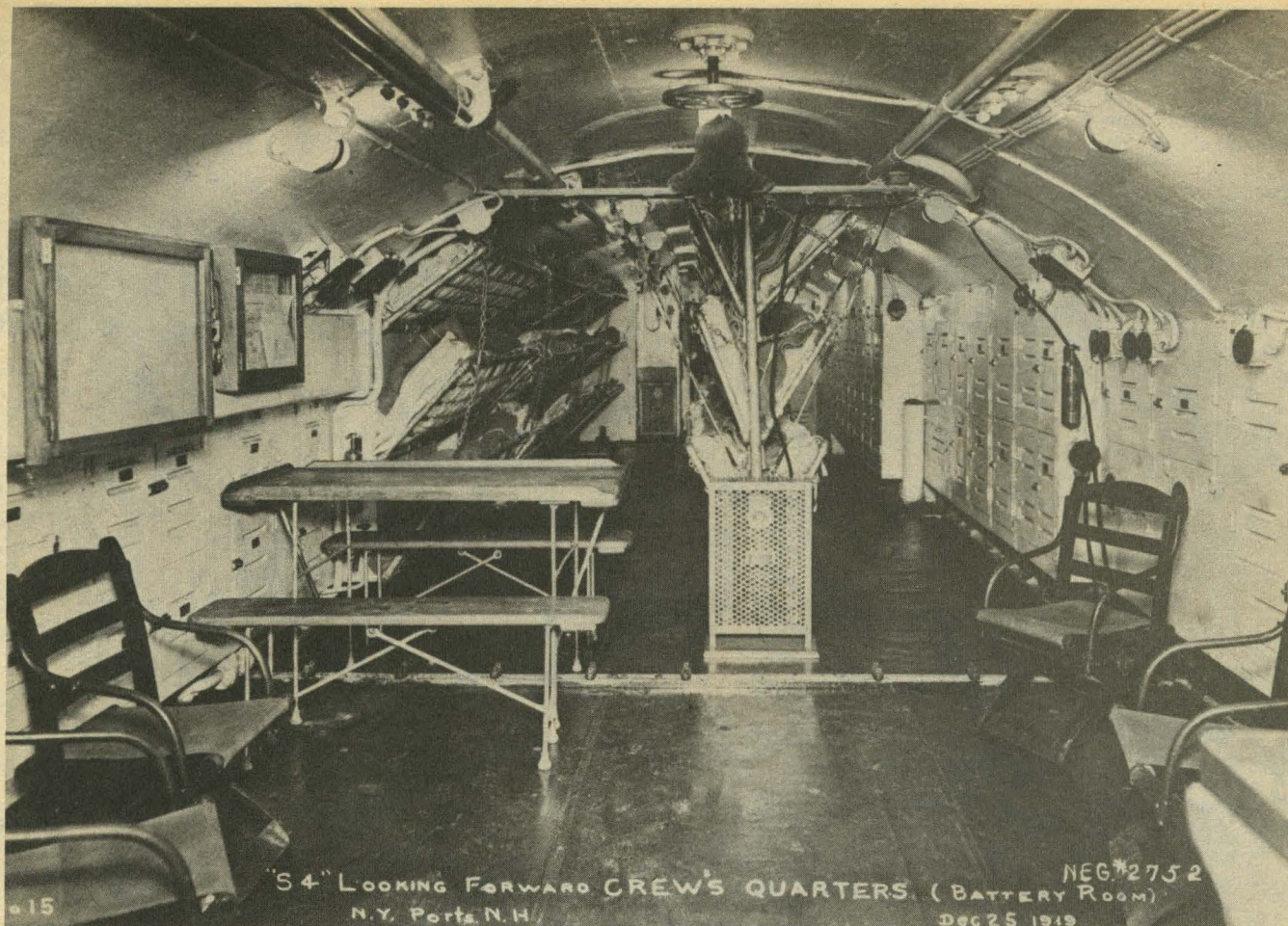
For the crew of the Coast Guard cutter *Paulding*, patrolling the waters off Cape Cod for rum runners, it had been a dismal and uncomfortable day. No suspicious craft had been sighted and now the wind and seas whipping up to storm force, at 3 o'clock the *Paulding's* skipper, LCdr John S. Bayliss, after rounding Race Point Light, ordered a return to port, running at 18 knots on a southeastward course toward Woods End and the Navy docks beyond Long Point. Except for the fishing vessel *William Langtry*, no craft was in sight. A mile ahead off the port beam was the white can buoy marking the beginning of the measured mile. Then at 3:35 the quartermaster and Ens Phanenmiller, officer of the deck, spotted a splash of white less than a hundred yards away

Originally a minesweeper, the FALCON, after aiding in clearing the North Sea mine fields in 1919, was refitted as a salvage and rescue vessel and performed outstanding service in raising the S-5 which had sunk off the Delaware Capes. Permanently assigned to submarine salvage work she was the flagship of the squadron under Capt. Ernest J. King which raised the sunken S-51 off Block Island. Then in 1927 when the S-4 went down following a collision with the USCGC PAULDING off Provincetown, the FALCON was the mother ship in the attempted rescue of the S-4's crew and the subsequent salvage operations.

— the feathery wake of a periscope! "Hard astern! Full right rudder!" screamed Phanenmiller and the pilot-house resounded with the clang of engine room signals.

Too late. Within seconds the conning tower of the sub emerged under the *Paulding's* port bow and the stem of the cutter tore into the side of the S-4. Horrified, the men on the *Paulding* watched the conning tower disappear into the waters below. Realizing the submarine could not remain afloat, Bayliss immediately ordered the position marked and buoyed and then sent the following message to Boston:

COMMANDANT NAVY YARD BOSTON.
RAMMED AND SANK UNKNOWN



"S-4" LOOKING FORWARD CREW'S QUARTERS (BATTERY ROOM) NEG #2752
 N.Y. Ports N.H. DEC 25 1919

SUBMARINE OFF WOODS END LIGHT
 PROVINCETOWN. PAULDING.

* * *

Knocked off balance by the shock, upon recovery the men in the S-4's control room instinctively glanced upward. No water was coming in from overhead and then came the startling realization of what had happened.

"The battery room's torn open!"

And as the torrent of sea water flooding the battery room began forcing its way aft, the compartment door was slammed shut and dogged. Yet, there was a moment's hesitation. What of Fitch and the men forward? No one appeared and so the dogs were hammered home.

"Blow ballast tanks," yelled Jones in an attempt to restrain the rapid descent of the stricken vessel, unaware that the forward ballast tank had also been rent by the crash.

80 feet . . . 90 . . . 95 . . . 100 read the depth gauge. And then with her engines dead, her batteries soused with sea water, the S-4 shuddered into the muddy bottom of Cape Cod Bay. The needle on her depth gauge stopped at 110 feet.

Realizing there was no possible retreat for the men in the torpedo room, Jones ordered the compressed air turned off. It would be needed to re-

inforce their oxygen supply. Also there was the possibility of blowing the after tanks and forcing the stern above water, thereby providing a possible rescue of those in the control and engine rooms, a feat successfully accomplished when the S-5 sank five years before during trial runs off the Delaware Capes.

However, fate was again the captain and crew of the S-4, for hardly had the watertight door been dogged tight when water was now discovered pouring in from overhead via the ventilator duct from the battery room, and in spite of every effort to close off the valve, water continued to spray down upon the doomed men. Something had fouled the valve; it would not close. They were now wading in water and with its continued rise they took the only recourse left, retreat into the narrow confines of the engine room.

And what of Lt Fitch and the men up forward? With torrents of water filling the battery room there had been no possible withdrawal and so they had slammed shut the watertight door. Though unknowingly more fortunate than the others aft, Fitch and his men were without food, Fitch and his men were without food, heat, and lights and unless rescue could be effected within a short time they all knew that their chance for

S-4 looking toward crew's quarters (battery room). Situated between torpedo room, forward, and the control room, it was this section of the ill-fated submarine that received the impact of the collision with the cutter PAULDING, and the tons of sea water that poured into the battery room isolated Lt. Fitch and the torpedomen while at the same time forcing the evacuation of the control room. Note holiday decoration for Christmas 1919.

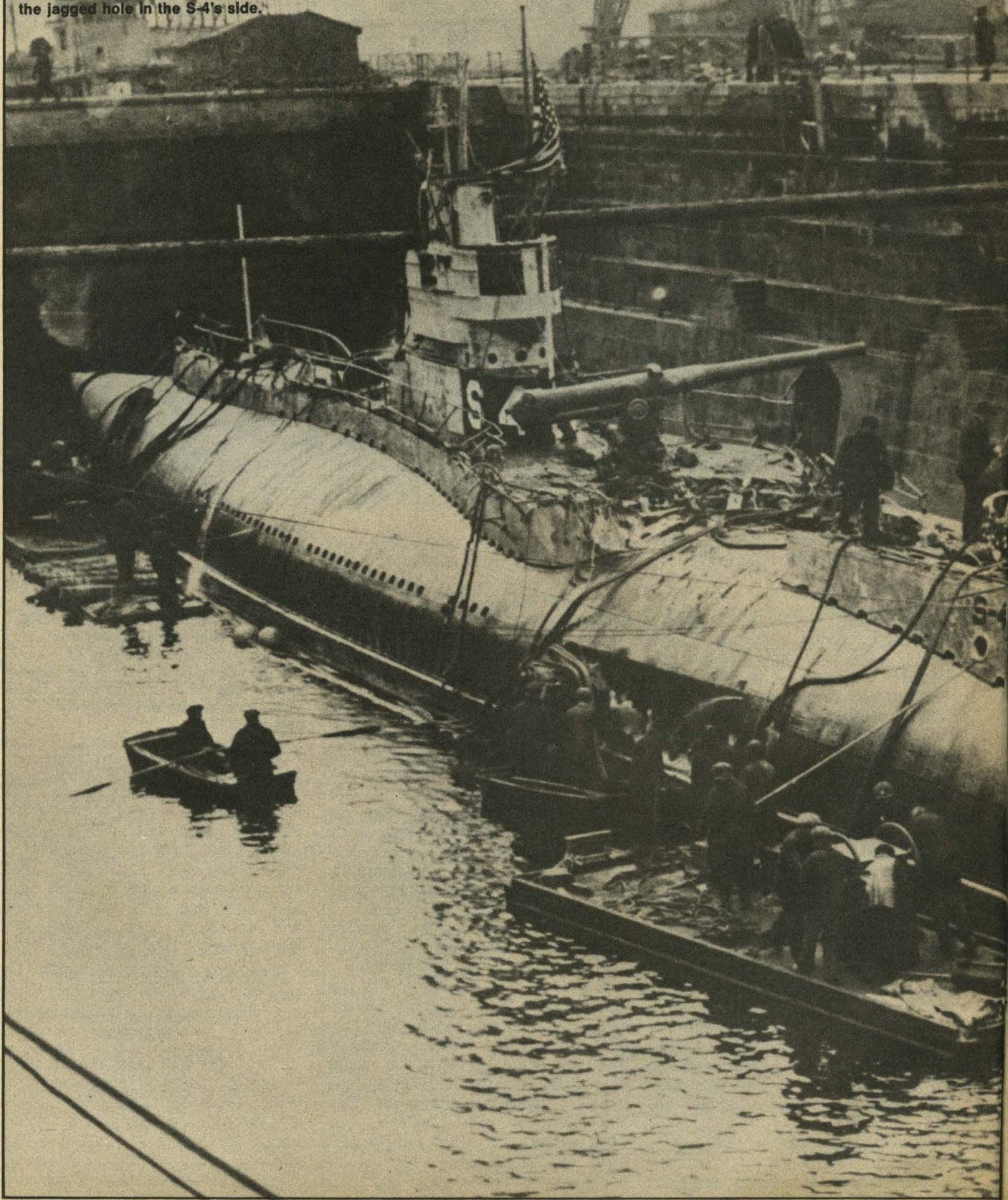
survival was indeed slim.

Directly upon receipt of the *Paulding's* message, orders went out from the base commander at New London for all hands to report immediately to the salvage ship *Falcon*, while at the same time an urgent wire was being sent from Boston to the Portsmouth and New York yards, as well as to the Submarine Base at New London:

SUBMARINE REPORTED SUNK AT
 WOODS END NEAR PROVINCETOWN
 BY COAST GUARD DESTROYER.
 RUSH.

Tugs and destroyers began getting underway and by 5 o'clock the *Falcon*, with RAdm Brumby aboard, was steaming toward Woods End, followed shortly by the tender *Bushnell*. Both Brumby and Lt Hartley, the *Falcon's* skipper, vividly remembered the tragic loss of the S-51 off Block Island two

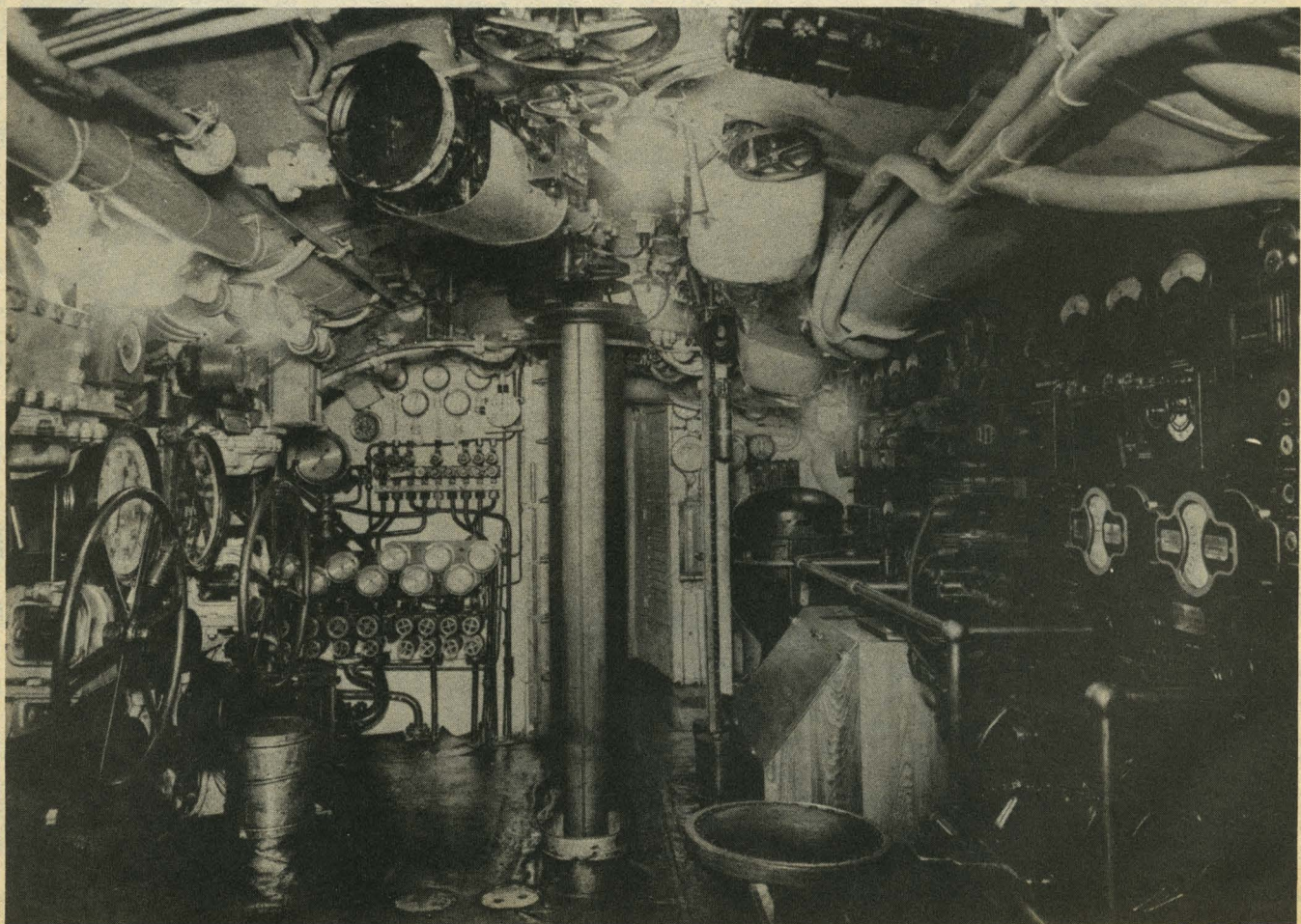
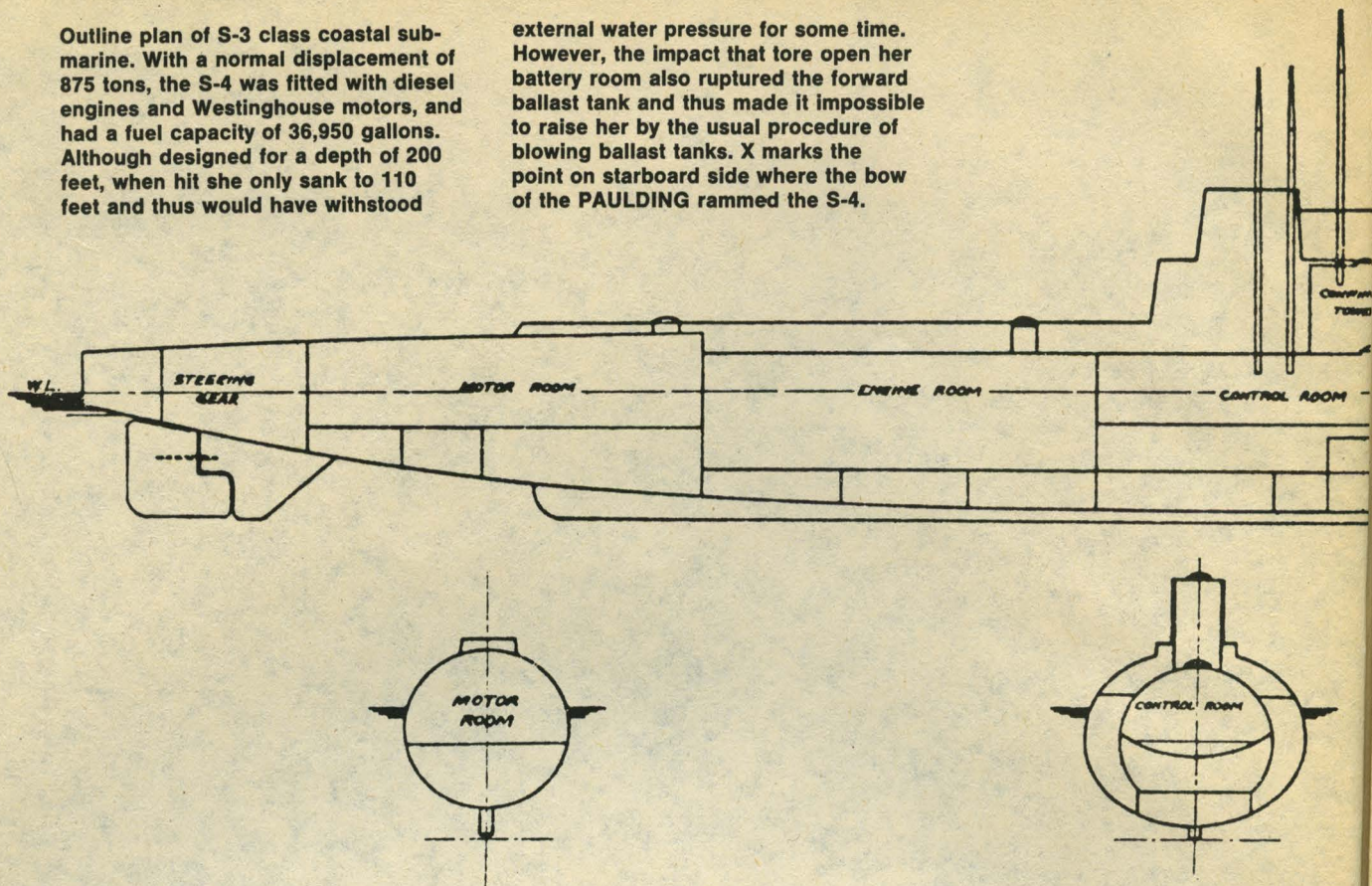
The S-4 in drydock at the Charlestown Navy Yard, 19 March 1928 after being raised by pontoons from the depths off Provincetown and towed to Boston. Photo shows remaining water being pumped from vessel prior to recovery of bodies of Lt. Fitch and the men in the torpedo room and those unrecovered in the engine and motor rooms. Note the jagged hole in the S-4's side.

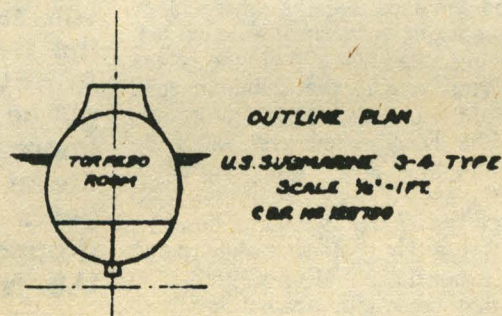
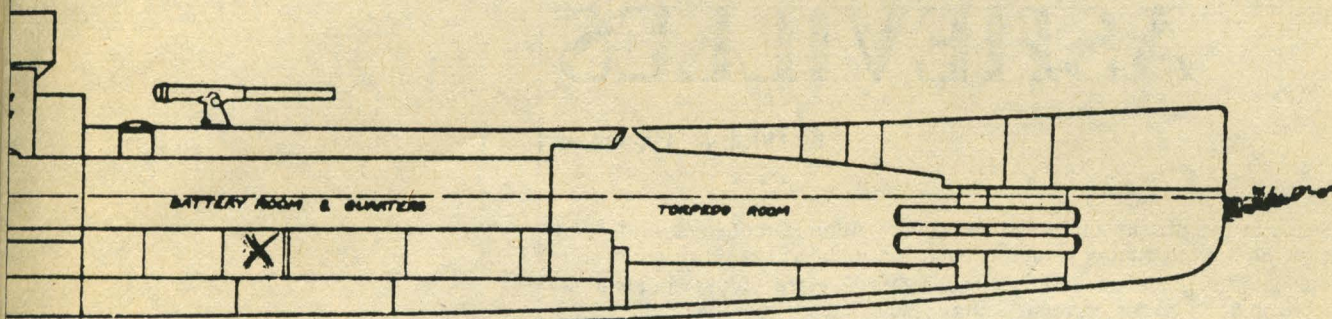




Outline plan of S-3 class coastal submarine. With a normal displacement of 875 tons, the S-4 was fitted with diesel engines and Westinghouse motors, and had a fuel capacity of 36,950 gallons. Although designed for a depth of 200 feet, when hit she only sank to 110 feet and thus would have withstood

external water pressure for some time. However, the impact that tore open her battery room also ruptured the forward ballast tank and thus made it impossible to raise her by the usual procedure of blowing ballast tanks. X marks the point on starboard side where the bow of the PAULDING rammed the S-4.





years before with 34 men aboard. Within an hour, darkness had shut off the coast line and with the *Falcon* bucking heavy seas, all indications pointed toward a prolonged spell of rough weather.

Simultaneous with the emergency orders to ship commanders had been an urgent phone call from the Boston yard to Chief Gunners Mate Thomas Eadie, home on weekend leave at Newport, Rhode Island:

"Tom. It's urgent. The S-4 has just been sunk off Provincetown. We'll have you picked up immediately with all the divers available at Newport."

For his heroic service in the raising of the S-51, Eadie had been awarded the Navy Cross and as he responded to the emergency he recalled the arduous struggle with the elements before the sunken hulk was finally freed from the grip of the Atlantic. And now the S-4 was down. He was personally acquainted with many of her crew and he envisioned the torture they were now undergoing.

Led by an escort of state troopers, by 12:30 a.m. Eadie and the other divers arrived at Provincetown. As expected the town was alive with the presence of newsmen, relatives of victims, officials, and onlookers, all awaiting the appearance of the *Falcon*, and as the hours crawled into daylight the air seethed with criticism of the Navy's apparent moderation.

It was 8 a.m. on the 18th before the *Falcon*, delayed by rough seas, finally reached Provincetown and at once preparations were made for diving. In the meantime Boatswain Gracie, from the Race Point Coast Guard station, having observed the collision, had at once put out in a surfboat and throughout the afternoon and night had maintained a sweep of the oil slicked area with a grappling hook. Fighting the freezing spray and though pitched and tossed about by the rising seas, with the aid of a minesweeper's searchlight and the arrival of the *Bushnell*, Gracie's hook finally snagged the S-4 and held.

It was now 10:15 and Hartley directly got underway for diving operations. The temperature had dropped to 28° F. and with a steadily increasing wind, mooring the *Falcon* in a relatively fixed position to permit safe diving wasn't easy and it was after 1 o'clock — nearly 23 hours after the

collision — when Eadie stepped onto the diving stage and began his descent to the sunken vessel.

Outboard of the *Falcon* and the assisting rescue vessels rode a flotilla of small craft, many carrying newsmen, braving the elements to get the first report on those stricken below. Uppermost in everyone's mind, of course, was the question: "Is there still life aboard?"

At 1:50 came the first ray of hope when Eadie reported: "We've got her. I see the conning tower directly below." Landing on the sub's deck with a thump, Eadie heard what seemed to be an echo and then a sound that came from within the hull, the ring of metal against metal. Climbing down onto the forward deck and moving toward the bow, the pounding became more distinct. It was definitely a signal, and continuing forward Eadie knelt down and tapped with his hammer. From within came an answer, and now on his hands and knees he crept forward following the reverberations with his gloved hands until directly over the hatch plate leading to the torpedo room. Directly below him came the unmistakable vibration of metal against metal — six sharp taps, a pause, and then the signal repeated.

"There's life in the torpedo room,"

(Continued on page 76)

View of control room looking toward crew's quarters on S-4, nerve center of the submarine that had to be evacuated when water from the flooded battery room forced its way into this area via the valve controlling the overhead ventilation duct.

DISASTER OF THE S-4 SUBMARINE

(Continued from page 25)

Eadie shouted. "Six men. But I don't know about the rest."

He turned, and making his way aft, saw the ugly gash in the S-4's starboard side. Continuing on back to the conning tower, Eadie again knelt and tapped with his hammer. This time there were no answering taps and from the dull thud of his hammer it seemed that the control room was full of water, although there was no evidence of hull damage aft of the battery room. Then crawling back to the area over the engine room Eadie tapped again and this time his hammer bounced off the live metal.

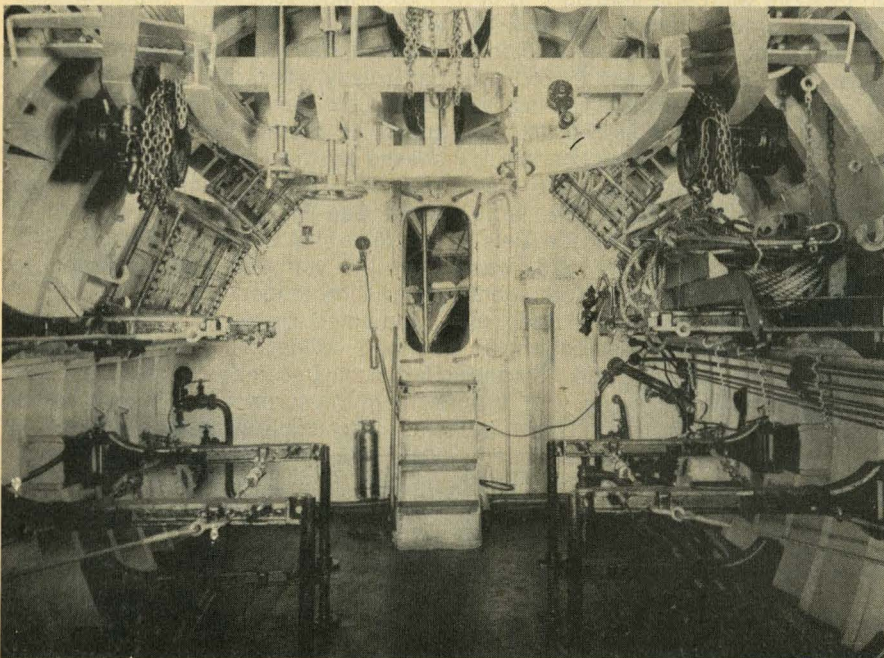
"The control room is flooded, but the engine room isn't," Eadie reported. "There's a huge gash in the battery room and it's flooded too."

"Anyone alive in the engine room?"

"No, I don't think so."

Eadie tried tapping again, hoping for a return signal. Then with no return answer he placed his hand over the deck plate and then tapped. No vibrations. Were they already victims of the deadly battery fumes or perhaps just unconscious? If unconscious there was a chance if air could be gotten to them in a short time. Asked via

Torpedo room, S-4, looking aft toward sleeping quarters and battery room. Confined to this area without food, lights, or drinking water and with a limited supply of oxygen, Lt. Fitch ordered his men to their bunks and for 2½ days maintained contact with his hoped for rescuers by tapping on the overhead hatchway with a socket wrench.



the phone from the *Falcon* if he had finished his inspection, Eadie replied: "Yes, Sir, as soon as I check the salvage line," and then began the routine halting ascent that would end in the decompression chamber aboard the *Falcon*.

Now for the first time he realized how cold it was. Not only were his hands numb but even with three sets of woolen underclothes he felt as though he was encased in ice. And he wondered how miserable it must be for those still alive inside the S-4.

As Eadie had reported, he was correct in his assumption that there was no one alive in either the control or engine rooms. From the signalled tapping from the torpedo room, however, it was apparent that six were still alive, although their continued existence was terminal unless rescue could somehow be affected.

* * *

Entombed in Stygian darkness, huddled in their bunks sandwiched between the torpedoes, Fitch and his men strived to conserve their strength in the near freezing temperatures, praying that somehow rescue would come before they exhausted the rapidly diminishing supply of oxygen.

The hours passed and no sounds disturbed the funereal silence. What was delaying the divers? Could it be the weather? They knew that storm signals were flying when they cleared Provincetown. If the storm had reached gale force it would delay rescue operations. Off and on during the night they heard what seemed to be a chain or possibly a grappling hook intermittently passing back and forth over the plates above, but it wasn't until Sunday afternoon that they heard the longed for sound — the deliberate

leaden tread of divers' feet. Fitch seized a wrench and by the light of an emergency lamp struck the tool against the overhead plating. Then as the footsteps stopped and then resumed toward the bow, Fitch struck off six distinct taps on the overhead, listened, and then again struck off six taps. This time his signal was answered from directly overhead and he knew he had been heard. Then the footsteps slowly retreated and the trapped men could hear the echo of hammer against metal. Evidently the diver was exploring the other compartments for signs of life. No answers. Were they the only ones alive?

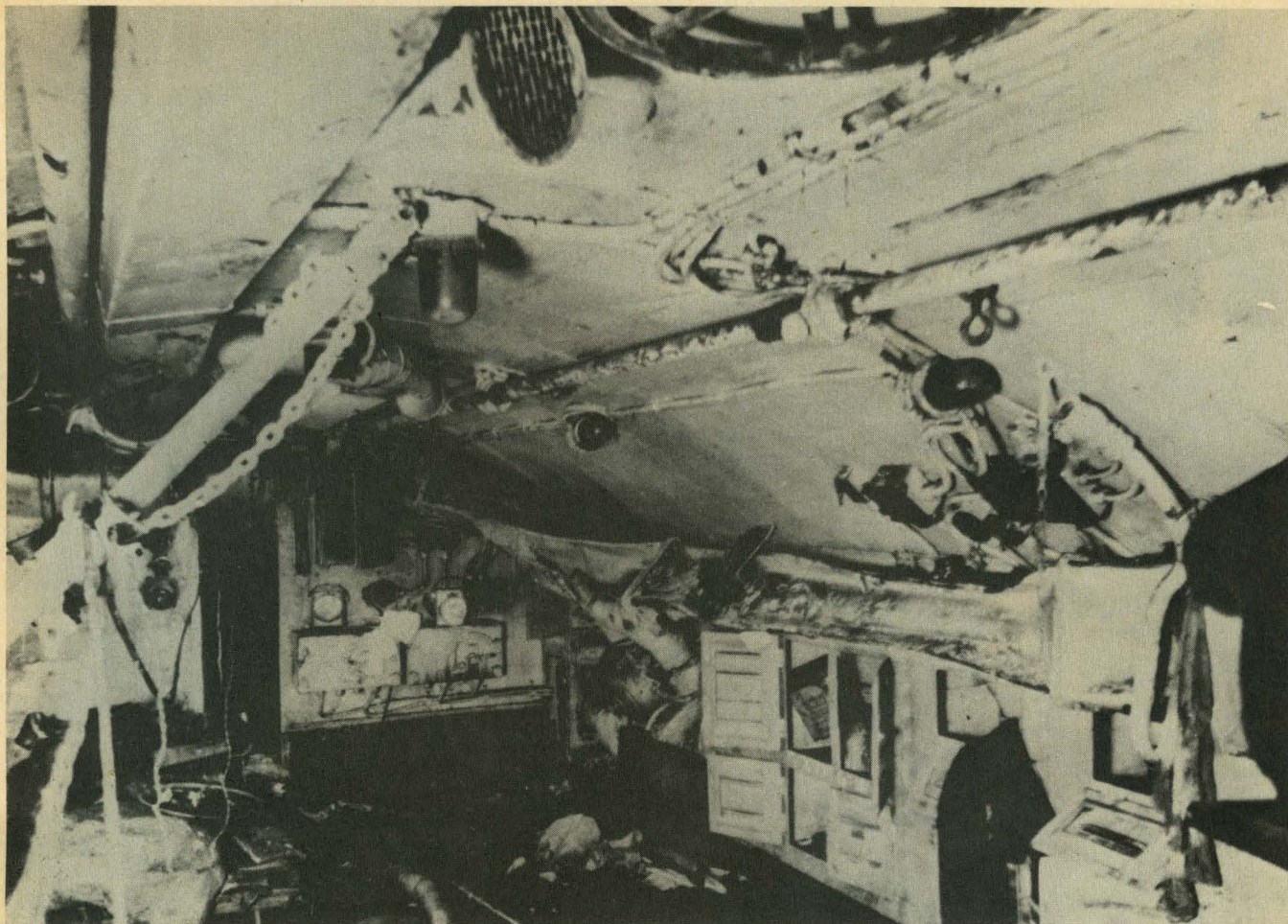
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Upon receipt of Eadie's report, Adm Brumby conferred with his staff of officers aboard the *Falcon*: Capt Ernest J. King, who had been senior officer in charge of the S-51 operation; Cdr Saunders, an expert on submarine construction; and Lt Hartley, skipper of the *Falcon*, with considerable experience in salvage work. All knew the odds below, that with one and possibly two compartments flooded, there was slim chance that blowing the sub's ballast tanks would float her. But faced with the possibility that the men in the engine room might still be alive though unconscious, the only alternative was to blow the ballast tanks and possibly bring the S-4 to the surface. Those in the torpedo room could probably hold out a while longer. With diver Carr dressed and ready, Brumby made his decision: "Blow the ballast tanks," and Carr was lowered beneath the heaving sea.

It was well over an hour before Carr was able to couple the air line to the forward ballast tank and report "Coupling secured." Then in the teeth of a 30 mph wind, Hartley slipped the *Falcon's* lines to allow the sunken sub to come to the surface.

"Start compressors," and air began hissing through the line as pressure was gradually increased. Minutes later immense bubbles began to churn the turbulent water. It was evident that there was a fatal leak somewhere on the sub, with the possibility that one or both of her ballast tanks were ruptured. It was now 4:40, darkness would soon be upon them, and with Carr already down beyond the time limit, Brumby ordered the diver up. Nothing more could be done to save the men aft and he must now try to get air to those in the torpedo room.

While Carr was being brought up, Chief Torpedoman Michels, who like Eadie and Carr had worked on the S-51, was being readied to go down, although with the wind and the seas battering the *Falcon* and the oncoming darkness, it would be tough going



The port side and aft bulkhead of the battery room in the S-4, showing the collapsed ventilator duct through which water entered the control room. Into this duct the water forced the curtain and flag which clogged the valve on the after side of the bulkhead and prevented its closing. It was this water which forced the abandonment of the control room.

for Michels and the men tending him. Yet it was the only chance to get air to those still alive below.

In the meantime the S-8, sistership to the sunken submarine, had arrived on the scene and all aboard her realized what Fitch and his men were going through. As one of her officers aptly summarized their plight: "It's mighty cold down there; like the inside of an icebox. It's pitch dark and their only light is an emergency lamp. They have no food and probably no water. As for oxygen they may have a couple tanks, but not enough for very long."

From the S-8's radio room a message was pinged down to Fitch in Morse code:

"Is there any gas down there?" To which Fitch tapped an answer:

"No, but the air is very bad. How long will you be?"

"How many are you?"

"Six. Please hurry." And as Michels

began his descent to connect the air line, the *Falcon's* operator sent Fitch a final message: "Compartment emergency air line now being hooked up."

It was 8 o'clock Sunday night when Michels reported: "Am on deck now". However, encumbered with a 1000 watt lamp and an extra 100 feet of air line, his forward progress was considerably retarded and it was thirty-five minutes before he answered the repeated calls from above. The storm had grown steadily worse and the *Falcon* was bucking and heaving as Hartley strived to maintain her position. Then from Michels: "Line fouled . . . Can't get loose." And, in gasps "Tell Eadie, bring . . . heavy . . . wire cutter," and his voice faded out as though turned off by remote control. From the *Falcon* came a reassuring: "Hang on, Mike, we'll get help to you."

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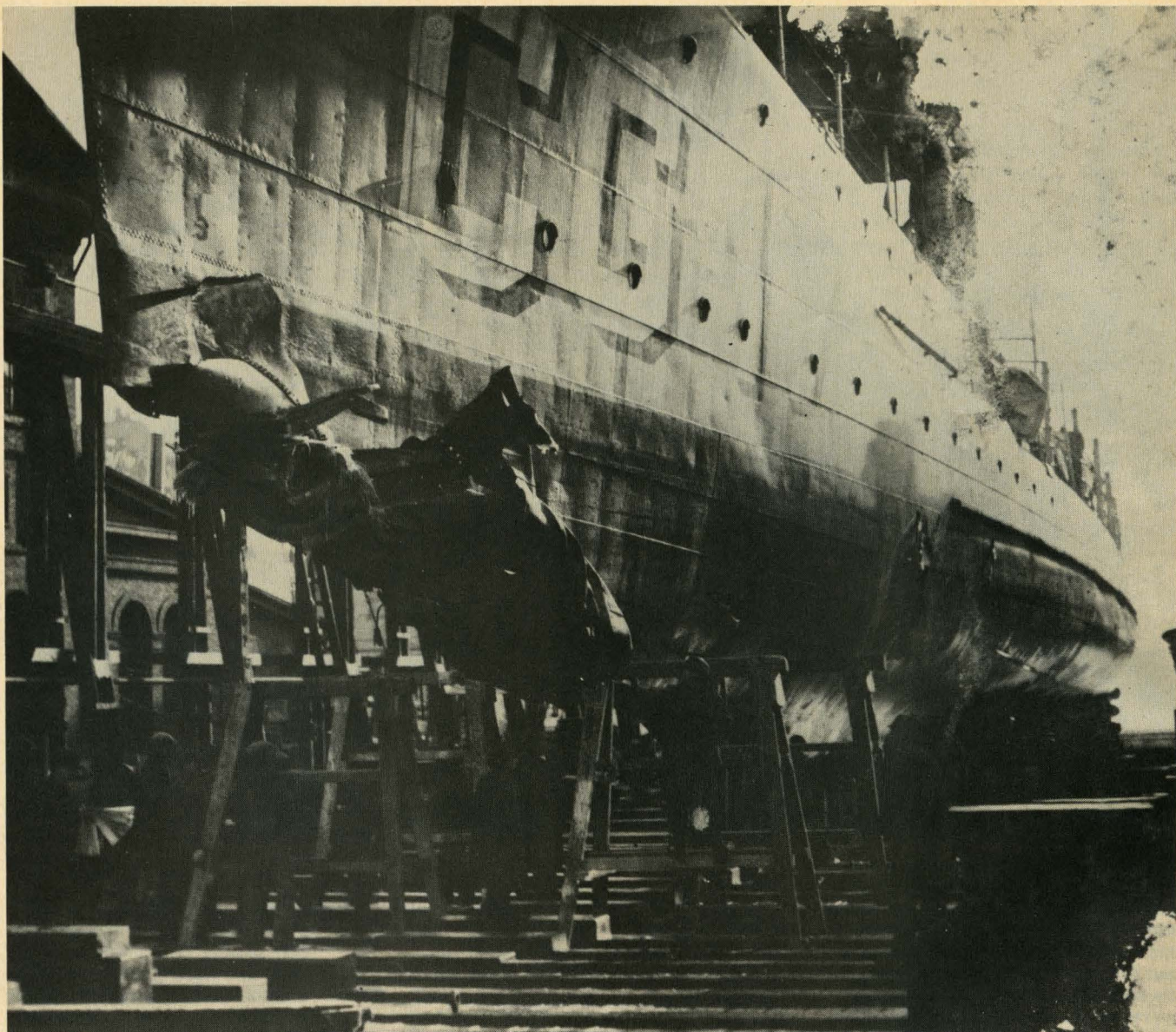
And so, while newsmen and civilians jammed the streets and public buildings of Provincetown, questioning the Navy's procedures in general and in particular asking why more divers weren't being sent down in groups, Fred Michels lay face down on the deck of the S-4, 110 feet down, his air line fouled in two places, and progressively being sawed in two by

a jagged piece of metal. Water was already forcing its way into his air hose and he was rapidly losing consciousness.

Exhausted though he was from the effects of his recent descent, when awakened and informed about Michels, Eadie leaped to his feet and dashed into the diving gear room. Quickly dressed he smeared his hands with waterproof grease, then slipped on a pair of heavy woolen gloves; at least the grease would protect his hands long enough, he hoped, to cut Michels free.

At 9:30 Eadie was again on the bottom, landing just forward of the conning tower. As he moved forward in the glare of his lamp he caught the dim outline of Michels laying face downward, motionless, his air line coiled about him. As Eadie raised him to a sitting position he noticed that Michels moved his arm. Failing in an attempt to talk to him through his face piece, Eadie adjusted the air valve on Michels suit, and turned to the task of freeing the tangled air line.

It was well over an hour before Eadie was able to saw through the wreckage that held Michels' line over the starboard side. By then his hands were beginning to freeze, his fingers so numb he almost dropped the hacksaw that had been sent down to him.



USCGC PAULDING (CG-17) showing damage done to the bow of the cutter by the force of its collision with S-4 off Provincetown that sent the submarine to the bottom with a crew of 40 on board. Photo shows the PAULDING in the Charleston Navy Yard awaiting repairs.

And, there was still a portion of the line fouled below over the port side, some twelve feet down. Clambering over the side, Eadie found the line caught under a sharp piece of metal. Finding it would not give, he was about to cut the line and send Michels up — he had been down over three hours — when with a super human tug he pulled the hose free. However, in his bout with the snagged line, Eadie had caught his trouser leg on a razor edge of metal and as he climbed back onto the S-4's deck he could feel the icy water seeping in around his chest.

By this time Michels had again

slumped down on the deck. There was no more time left, if Michels wasn't already dead he soon would be. Suddenly Eadie felt his line grow taut. Evidently they thought his line was Michels.

"Don't haul me up," he shouted into the phone. "Take Mike up." His line went slack and then Michels began to rise.

In the course of his freeing Michels, every now and then he could hear an echoing tap from within the sub. "Poor devils," he thought, "they've heard me and think I'm connecting up the air hose to the compartment." And now that Michels was on the way up and Eadie was free to attach the air coupling, he didn't have the strength left to do more than make a last sweep of his lamp over the bow, hoping that maybe Michels had succeeded in making the vital connection before his line became tangled. However, he could see nothing but the blackness beyond. Then, with the pressure in his head almost unbear-

able, along with the numbness of his hands, Eadie gave way to the torture.

"Please haul me up," he mumbled weakly and as he felt himself rising, the change in pressure seemed to cut him apart inside.

* * *

Throughout the night and into the morning hours Carr, Eadie, and LCdr Ellsberg, who had come aboard during the night from Provincetown, worked over Michels in the recompression chamber, trying desperately to restore circulation into his nearly lifeless body. Finally, at 3:30 he began to respond. Sitting up he recognized and spoke to Cdr Ellsberg. Yet they all knew that this was but the first stage of the fight, that Michels belonged in a hospital, but could not be moved from the recompression chamber. There was only one recourse: the *Falcon* would have to take him to Boston.

It was a tough move for Adm Brumby to make. Yet with the weather as



Naval divers who performed outstanding service in the attempted rescue of the S-4's crew and the later raising of the sunken submarine from the waters off Cape Cod. Left to right, back row: Michels, Eadie, Wilson, Carr, and Eiben. Front row: Grilley, Mattox, and Doherty.

it was, with no sign of immediate change, it would be extremely difficult to continue rescue operations until the storm subsided. All aboard the *Falcon* hoped and prayed for a possible lull that would permit attaching the vital air coupling to the torpedo room. Early Monday morning Hartley gave the order "Up anchor. Cast hawsers loose," and the *Falcon* began the 60 mile run to Boston to save the life of Fred Michels.

Even though the *Falcon* was back in position again late Monday afternoon, diving conditions grew progressively worse. All that could be done for the men below in the S-4 was to answer their infrequent tapped out messages. Early in the afternoon Fitch had hammered out "How is weather?" and the answer had gone down "Choppy". It was better not to tell him the whole truth. Later, in answer to Fitch's query, "Is any hope?", the only thing they could say was: "There is hope. Everything possible is being done."

Of course Brumby's decision to take Michels to Boston aroused a storm of criticism and the inability, and what appeared to newsmen as refusal, to report progress on the rescue operation, rankled the reporters clustered in Provincetown. Then the press began to lash out at the Navy with an intimation of persistent blundering, and unaware of the unsuccessful attempts made, and, unable to

fully appreciate the difficulties encumbering the operation, many dailies continued to clamor for answers. But there were no answers that could be given beyond what already had been said to Fitch: "Everything possible is being done".

Throughout Monday night and into the following morning the men on the *Falcon* waited, hoping for a break in the storm that would permit diving, and throughout the afternoon and night the radioman continued to ping out this message:

LIEUTENANT FITCH: YOUR WIFE
AND MOTHER CONSTANTLY
PRAYING FOR YOU.

LIEUTENANT FITCH: YOUR WIFE AND
MOTHER CONSTANTLY PRAYING
FOR YOU. LIEUTENANT FITCH . . .

but no answer came back. Then at 6:20 Tuesday morning came three short, deliberate taps, "I understand." It was the last word to be received from the torpedo room.

* * *

On Wednesday the weather cleared and the seas subsided. At once Cdr Ellsberg was made ready for diving. Then, as though the god of storms was not quite ready to submit, it was discovered that the lines leading down to the S-4 had been so chafed by the storm that they parted like so many strings, and again the *Falcon* was out of contact with the sunken vessel. And so another day was spent in relocating the S-4. It was not until 11 o'clock that night that divers Wilson and Eiben were able to report success in coupling an air hose onto the S-C tube that led into the torpedo room. Trusting that Fitch had thought to open

the inside valve, the order was given: "Start compressors," and in seconds air was flowing into the compartment. Wilson and Eiben tapped on the deck and listened for a return signal. No sounds of any kind came back. "Reverse compressors" and stale air was sucked back up to the salvage vessel to be chemically analyzed. The sample showed a 7 percent carbon dioxide content. Too much for six men incarcerated for four days without food, drinking water, or fresh air.

* * *

On January 4th, divers cut their way through to the engine room of the S-4 and three bodies were brought up. In the subsequent days the remaining officers and men of the 34 who had sought refuge in the tiny compartments of the engine and motor rooms were likewise brought to the surface for burial with appropriate honors. Close inspection of the area indicated that none were alive when Eadie made his first descent on Sunday, December 18th.

On December 23rd it had been officially announced that all aboard the S-4 were presumed dead, although the Navy's work was yet to be completed and it was not until March 17, 1928 when the S-4 was brought to the surface and towed to the Charlestown Navy Yard that the full story of the 63-hour ordeal of the men in the torpedo room would be fully revealed. On the bulkhead wall were Fitch's flashlight and pocket watch, its hands reading 3:19. Above the bulkhead ladder the hatch plate showed the scarred and chipped paint, and on the deck lay the T-shaped socket wrench. Fitch had persisted to the end in his relentless struggle to communicate with his hoped for rescuers and after ordering his men to their bunks to keep warm and conserve their strength, he had continued to climb the ladder to the hatchway to tap out his signals in code. Then, too weak to longer hold the wrench, he had slipped to the deck and passed from further responsibility.

As for Cdr Jones and the remainder of the crew, inspection showed that whatever chance they might have had was directly eclipsed when water from the battery room began pouring into the control room via the ventilation duct. The control valve had jammed — the baize curtain separating officers' quarters having been sucked into it — making it impossible to close the valve. Had they been able to stay in the control room, Jones, with a control over the air valves, might have been able to save most of the S-4's crew.

But fate had ordained it to be otherwise.

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