

A MODERN LIGHTSHIP

The visitor, after tramping his way out in a lighthouse tender, whose bows all but vanished in the south-east sea that came heaving across Sandy Hook bar, with a roached, grey mane, had scumbled up the ten feet of free board over the side of No. 51.

Because of the strong currents that weave about Sandy Hook bar and a good bit off-shore, too, No. 51 does not always head the sea, and when the tall, south-east swell comes toppling in it often catches her in the beam for a couple of hours at a time, rolling her nearly rail-to, so that the day marks aloft on the masts hang for a second over the smother. The big steam pilot boats that cruise around close by can always head into it if they like, but the fettered lightship must take it as it comes.

Forward, under the long topgallant fore-castle head, that reaches aft for a quarter of the ship's length, is the great windlass over whose big drum leads the two-inch chain out through the hawse pipe till it sinks into the green sea. It is a hundred and twenty fathoms long, this monster cable, an eighth of a mile, and

other from the automatic fog whistle room, while last of all comes the dynamo room, from which are operated the great electric masthead lights that make the ship what she is. A skylight breaks the quarter deck, and then looms a big companion-way, with a canvas hood for wet weather. And round about sweep the sturdy bulwarks to the height of a man's shoulder.

"The lights are up to me," says John Larsen, the chief engineer, placing a fondling hand on the starboard dynamo, a corpse, as it were, by day, a whirling mystery by night. "After all is said, it's the man that minds the lights that makes the lightship. For what would she be without them? A black hulk on the sea, wallowing her life away. This dynamo here supplies the electricity for the main-mast, the port one for the foremast. This station doesn't call for a light on both masts, as some others do, so we burn them alternately, each seven days. The dynamos have a power of 100 volts and 24 amperes each, and they turn up 450 revolutions a minute. Look, here is one of the lamps for the masthead.

"There are four of these fellows on

"The cap'n says to start up the fog whistle; it's shattin' in again."

"Here," quoth the chief, "now you'll have a chance to watch this performance."

He slowly opened a valve in the next compartment, and a small auxiliary engine noiselessly got under way, turning a large, peculiar steel wheel, with a hollowed periphery, in which metal knuckles were bolted at fantastic intervals. Above this hung a horizontal weighted lever, pressing on the rim of the wheel. Nothing happened for a few moments. It seemed like the failure of a Roman candle to answer the torch, but the face of the chief was undisturbed. Suddenly one of the knuckles struck the lever, and raised it slightly as it went round. Instantly the whole solar system seemed to be filled with the roar of doom. Stanchions vibrated, lamps quivered; you could feel it in your very jaws.

"Ha, never been shipmate with a 12-inch steam whistle before, I see," remarked the grinning chief, when the boom of the thing had died, only to revive reinforced before you recovered from the first blast. "We call those little knobs on the wheel cams," shouted Larsen, "and observe by your watch that this fog signal is the exact reversal of the lights. They burn twelve seconds, with a three second interval; the whistle blast is of three seconds, with an interval of twelve."

SUBMARINE BELL IN ACTION.

"Many people think that the submarine bell is hung from a vessel's keel," said John Larsen, "and here's where I'm going to show you that it isn't. Look!

at fixed intervals, like the sounding of the fog whistle. See, here is a small brass wheel, fitted with cams, just as the big steel one is for the fog signals, only the intervals are much more complicated.

"There is one stroke, then an interval of one and a half second; another stroke, and a five-second pause; then a stroke, and a second and a half interval; another stroke, and a three-second pause; and so on, indefinitely, as long as the fog lasts, or the bell sounds. Now, if you'll come below, we'll listen to the peals of a submarine bell on the new Gedney buoy."

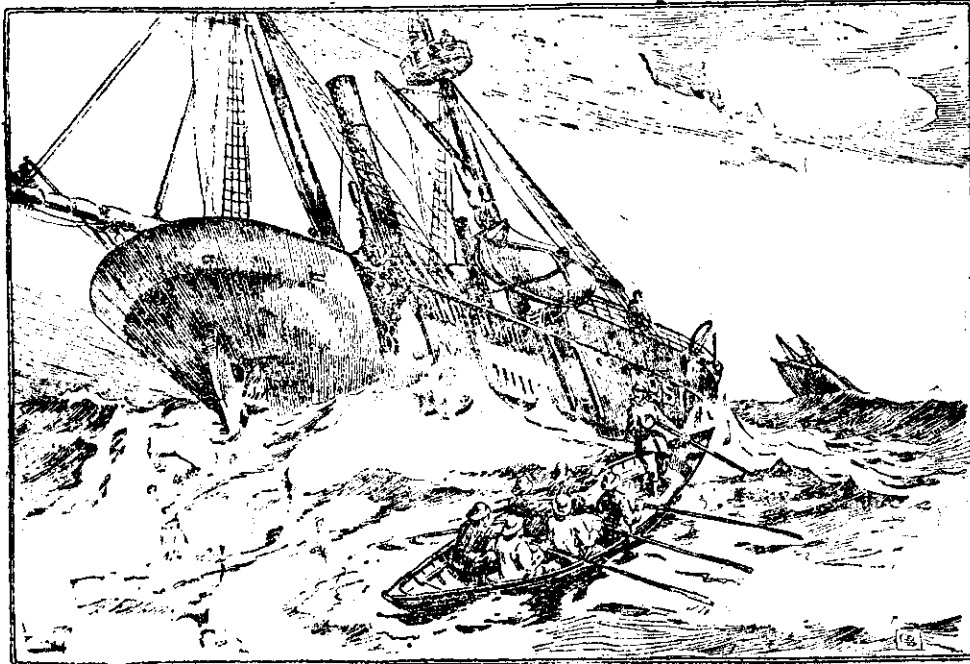
No. 51, being a steel vessel, was therefore a good conductor of subaqueous sounds, and we had not been below but a few seconds when the tinkle of a bell was plainly manifest without recourse to the receiver provided for the purpose, like a telephone instrument. Said the chief:

"That bell is more than three miles away, on the buoy, and if you did not know where you were in a fog, and heard those punctuated taps, you could ascertain exactly your position by referring to the code book, just as you do in the case of the lighthouses and ships to know the flashes. I'll connect our bell now, so you can hear what sort of sound it makes in the open air."

BELLS ARE ALL HARSH.

The engineer started up the machine that controlled the bell, and there, as it hung ten feet out of the water, and within twenty-four inches of the lightship's rail, we could watch the working of the tongue, or striker, just as it operated three fathoms below the surface. The tone of a bell weighing 200lb, as this one did, is generally believed to be mellow, with perhaps a trace of booming in it. But this submarine piece, when struck in the open air, assaulted the air so acutely that to get without the acid tang you had to cross the deck and put the companion-way between. There must be no sonorous chime of a bell destined to toll away its life beneath the flood. Its voice would not be heard; and so, for the service of the deep, to guide the confounded mariner into the paths of safety, the bell is cast with a bitter voice.

Again the vapour cloak closed in, for the weather was confused with itself—now clear, now hung with fog, as the steep easterly swell rolled smoothly in. So the bell was slowly immersed in its destined element to toll no knell, but instead to steer the harassed mariner into the fairway of knowledge and truth. And deep beneath the surface we could catch its note of warning, with stuttering tongue, announcing to the floating world that No. 51 was faithful to her, that the dunes of Sandy Hook bore west one-half north.—"New York Tribune."



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every link tilts the beam at fifty pounds, except where the sixty pound shackles cut in every fifteen fathoms. At the outer end of this iron eye is buried a mushroom anchor of nearly two tons in weight, an iron disc four feet across, with a shank like the trunk of a tree, and to this great mooring gear No. 51 rides out the heaviest gales of the North Atlantic winter.

"Mark this," says the master, close alongside, "the strongest north-easters, when they blow four days on end, don't lift all that chain off the ground. In the ten years I've been on the station, I'll lay a bet that she's never tautened out her cable yet. There's eleven tons of it 'twixt the hawse-pipe and the swivel on the mushroom, and the best thirty fathoms of it's never let the bottom since 'twas planted. That's how easy she rides."

Further aft, on either side of the rubber butters that help in absorbing the shock of the sea on the cable are the paint and tool lockers, and casks of salt meat for the crew, as well as fresh water barrels, while overhead, from the carlines, swing thick ribs of beef and rashers of bacon and hams and tongues for the cabin.

Out on deck, the forward end of the house holds the galley, separated by a bulkhead from the ash lift, and by an

each mast, of 100-candle power, making 400-candle power in each group. But, of course, the lenses around that lamp greatly magnify the strength.

TURNING ON THE LIGHT.

"Now," said the chief, "we'll couple her up, for I perceive that it's time," and he passed a leather band around the shaft.

Instantly the dusky main masthead sprang into colour, blazed out in the drab of the rainy sky for a time, blinked, died, and was born again in a few moments.

"She flashes every fifteen seconds," explained the big Norseman, whom Nansen might have chosen for the Fram. "The light burns twelve seconds, and there is a dark interval of three, so making a flash every quarter of a minute. This, as you see, is done automatically by this flashing device, that is connected with the dynamo shaft by this belt. At every revolution of the shaft the circuit is broken by the split here in this copper rim for three seconds, when connection is made again as the shaft makes the complete turn."

Here the lecture was interrupted by the face of the mate, Mr. Scudged, which appeared unexpectedly in the window.

There is, suspended in the mid-air, as the skipper would say."

Anchors, on the port side of No. 51, there curved a strong, short gaspipe davit over the water, from the end of which was an unusual object, depending from a length of stout chain. This was the bell apparatus in its entirety, which had been hauled up out of the green and silent depths for the information of the visitor. When hanging from the davit it had a clearance of the ship's side of about two feet. There were apparently two almost separate contrivances, consisting of a massive metal egg-fashioned receptacle, superimposed upon a still more massive, thick-lipped bell, whose composition is said to be a secret. Along the chain, as the bell was lifted from the sea, a strong rubber hose was secured by many buckles, and a powerful hammer hung a short distance below the rim of the bell.

"It is suspended twenty feet below the surface," said the chief, "and is operated by compressed air from this little engine here in the fog-signal house. This kind of cylinder over the bell is stuffed full of machinery, which is acted upon by the compressed air injected through the rubber tube, and the heavy striker makes a contact with the rim of the bell

In an interview with Admiral von Tirpitz, the German Naval Minister, which appears in a Home paper, the Admiral expresses his deep solicitude to dissipate the idea that Germany's naval activity implies any threat to Great Britain.

"Do you really suggest," he asks, "that the people of England seriously believe that the German nation and the German Admiralty are preparing an aggressive war against England? . . . All I can do is to repeat that, in my judgment, the charge is so essentially foolish that I personally look upon it as quite undeserving of refutation. . . . We have always looked up to the British Navy, and when it was decided to strengthen the German Navy, in order that we should have a Navy suitable to our rank as a first-class Power, and in order to enable us to defend, if needed, our commerce and our colonies, neither the Kaiser nor the Admiralty had any aggressive purpose in view."

For there is assuredly no single question in any part of the world that could be utilised as the cause for an aggressive action against England. If it had been otherwise, we should have been forced to introduce a bill of far wider dimensions in 1906. That Germany belongs to those Powers that view the idea of disarmament somewhat sceptically, can cause no surprise, for in the nature of things it is considerably more difficult for a Power with a small navy to consent to diminish its armaments than it is for a Power like England, possessing a navy so eminently stronger than the navy of any other Power to do so. Complaints are also made of the immense increase in the expenditure for naval armaments. But it must not be forgotten that England was the first to tread this path, and that in doing so she compelled the navies of other Powers to follow suit."