

OCEAN DISASTERS ARE TEACHING MANY SAFETY LESSONS

Steamship Companies in Last Two Years Have Put in Force Important Precautions Not Hitherto Thought Necessary—Stringent Rules Likely to be Made for Navigation in Fog as Result of Empress Wreck.

THE sinking of the White Star liner Titanic on April 15, 1912, in mid-ocean, through colliding with an iceberg, with the appalling loss of life, resulted in an International Conference on Safety of Life at Sea, meeting in London in December, 1913.

After drawing up a number of articles for improving the standard regulations for safety of life at sea, the conference terminated on January 20, 1914, after the protocol had been signed by the representatives of fourteen of the great maritime nations and scheduled to become law in July, 1915.

These recommendations are now pending before the United States senate in Washington, owing to the fight made by the steamship companies, both American and foreign, on the ground that some of the new rules contained in the protocol signed by the members of the conference would be injurious to the service and in some cases impossible to carry out.

Following the loss of the Titanic there have been two other great maritime disasters in which there has been serious loss of life—the burning of the Uranium Line steamer Volturmo on Oct. 10, 1913, and the sinking of the Empress of Ireland on Friday, May 29, in the St. Lawrence river, through a collision in a fog with the Danish collier Storstad, in which nearly 1000 lives were lost.

Without waiting for the new regulations to come into force, the Atlantic steamship companies have taken every

precaution in their power to insure the safety of the lives of those who travel on their steamers, and in these they have been supported by the hearty cooperation of the governments of the United States and Great Britain.

The most important innovation so far has been the ice patrol established along the routes taken by the bergs when they float down from the north toward the steamship lanes. Timely warnings are given to captains of liners when they are approaching a dangerous zone.

The Empress of Ireland was not fitted with a double skin of this description, but she had several watertight bulkheads, both longitudinal and transverse. This would have kept her afloat, according to experts, in any ordinary collision, but unfortunately the Storstad, the steamer which collided with her, struck the liner a slanting blow amidships and went through her hull toward the stern, ripping up every bulkhead and this let the water enter in great volume.

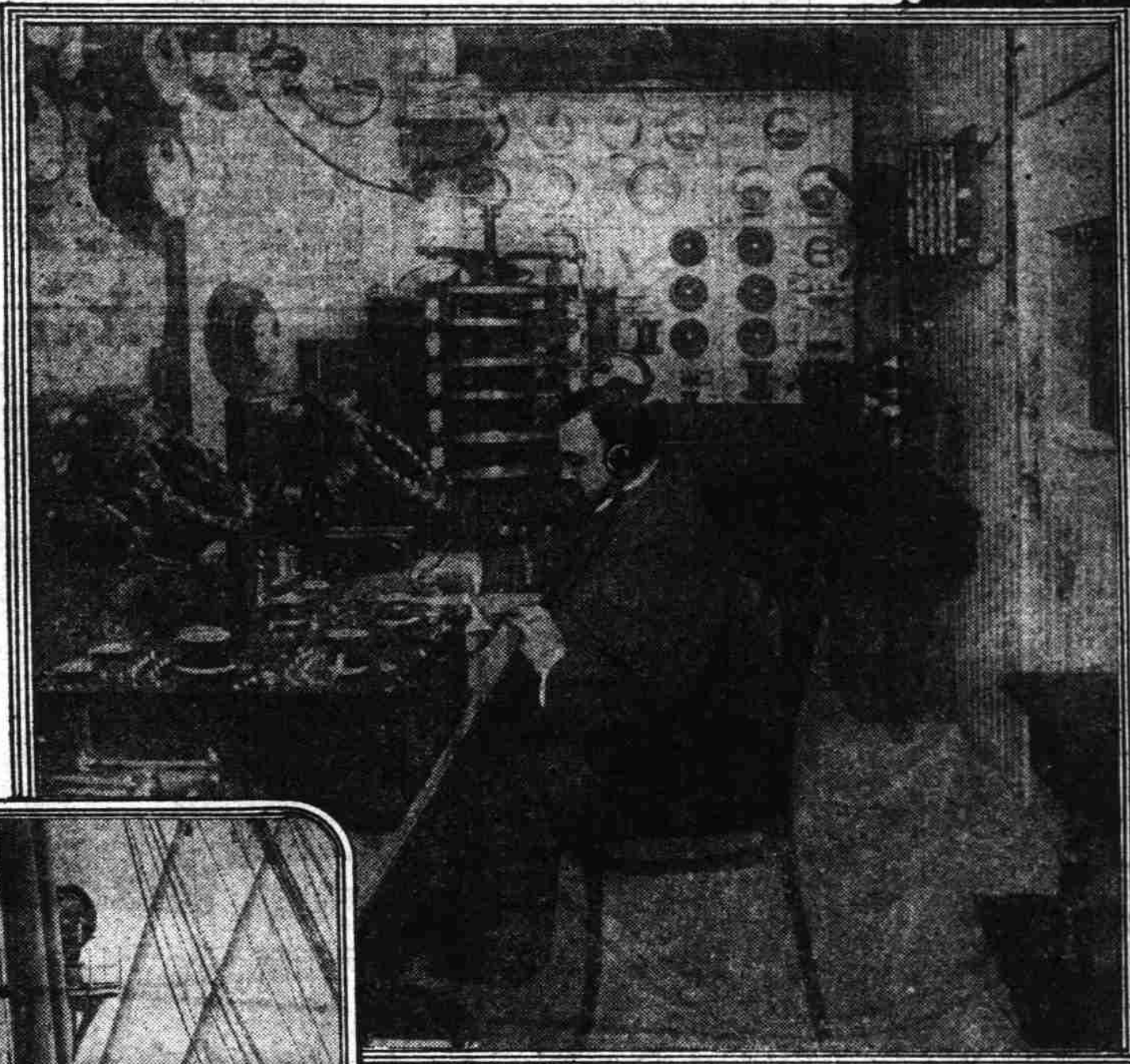
Lewis Nixon, who is an authority on shipbuilding in America, when asked if anything could be done in the future to avoid such another disaster at sea, replied that it was impossible to build ships that could not be sunk in a collision if they were struck in a vulnerable part. The only way was to change the international navigation laws to compel the commanders of vessels navigating narrow waters or of the open sea in the track of ships to slow down to storage way about three knots, during a fog.

This precaution is observed by most captains to a certain degree, but there has been a tendency on the part of the commanders of fast liners to keep a certain headway on the ship in a fog in order not to lose time in making port.

Owners of these vessels do not tell their captains to drive through a fog openly, but if a commander does not

thing for steamers to eight icebergs in June and July, and the captains used to pass within two or three miles if it was daylight in order that the

tion, there are telephones to all parts of the vessel, including the bridge, where there are never less than two officers on duty, and hose leads along



Wireless room Vaterland.

the corridors ready to be turned on at a second's notice. The hydrants are indicated by red lamps, so that any member of the crew or passengers can find them easily in time of need.

The majority of the big liners now carry a staff commander whose duty it is to look after the efficiency and discipline of the ship at sea. That is, he sees that the ship is kept clean above and below decks, and he is held directly responsible for the life saving apparatus on board and has to see that it is kept in first-class condition.

On vessels trading to the United States there has to be a lifebelt and a place in a lifeboat or raft for every passenger and member of the crew on board. This has been complied with by the companies because it has been demanded, but the most experienced captains are against carrying 100 per cent of lifeboat capacity on their decks. They say that with such a large number of boats on the upper deck it would be an impossibility to get them all out in time of need and it would prevent the saving of life through overcrowding the deck. Steamers when sinking usually list either to one side or the other, and if three or four heavy lifeboats were let go on the deck at the same time it would result in people being swept off the decks and killed as they were on the Empress of Ireland before she went down.

Motor Lifeboats Effective.

In place of carrying such a number of boats, hampering the decks, it has been suggested that two or more powerful motor lifeboats should be taken, as in the event of transferring passengers at sea these boats could do more work in one hour than a dozen lifeboats, on account of their speed.

The Aquitania has been equipped with two large motor lifeboats with

wireless apparatus which has a range of 100 miles, and the Vaterland and Imperator also carry motor lifeboats. The crews of the ships are drilled frequently during the voyage in handling lifeboats and life apparatus, so that they are ready to turn out and go to their proper stations when the alarm is sounded by the whistle or the bell.

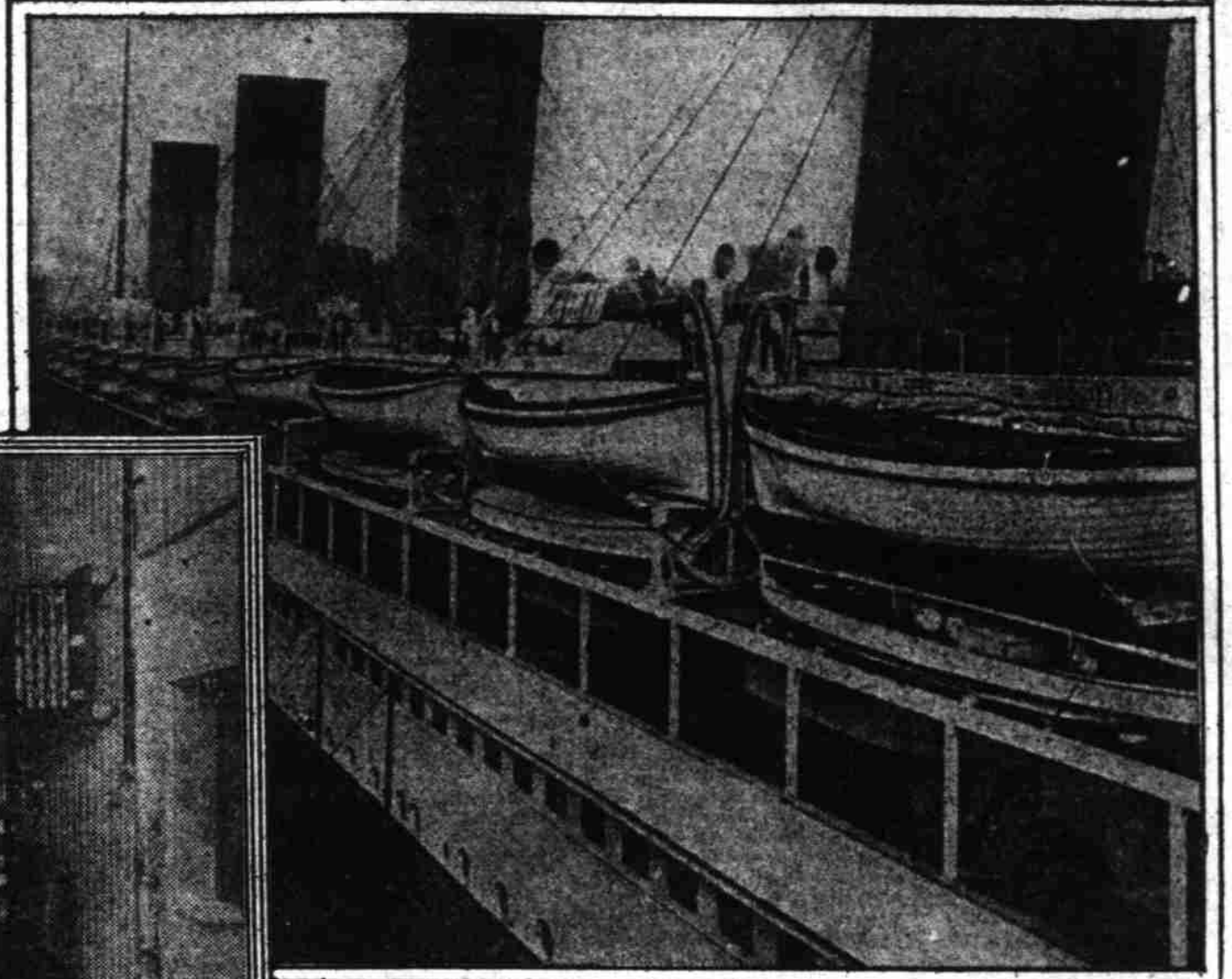
In the summer months the boats are lowered in the water in New York and the crews are encouraged to practice lowering and rowing the lifeboats by the offer of prizes by the various companies.

The introduction of the searchlights has proved a success in foggy weather and also in entering a port at night. The searchlight soon will be adopted by all lines as a precautionary measure to avoid running into ice, which is a greater danger than running into another ship, because it often lies low and has no lights.

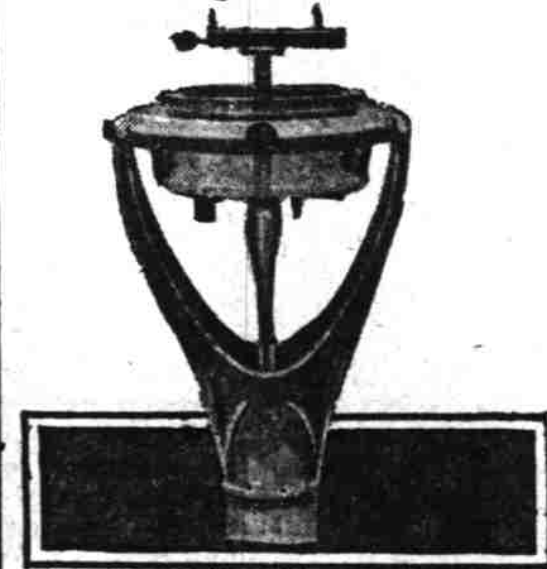
It has been suggested that the searchlight should be placed on the foremast at an angle of 45 degrees about six feet above the crew's nest, where the light would show to the best advantage. One of the dangers in case of collision at sea is the cutting off of the electric lights in the ship when the engine room is flooded and the dynamo put out of commission.

This has been averted in the latest constructed liners of the Vaterland and Aquitania class, by putting an independent electric light plant worked from storage batteries on the boat deck so that there will be ample light in case of emergency to get the boats out.

Thirty years ago, when the electric light was first installed on board ships, this emergency was anticipated by the steamship lines and large oil lanterns were hung in the alleyways below decks and a triangular box with glass sides, containing large candles, was inserted in the bulkheads between



Lifeboats on the Olympic.



Gyroscopic compass.

the cabins to be lighted in case the electric light failed at any time. In order that the stewards should be well acquainted with the ship and know what to do in case of accident, the captains would suddenly order the electric lights to be extinguished at 2 or 3 o'clock in the morning and give the order for a lamp drill. When the electric light became established on a firm basis the oil and candle lamps were dispensed with in the new steamers. They can still be found in the older vessels.

The submarine signaling apparatus which has been installed on many of the new ocean liners has proved to be of inestimable value to navigators in foggy weather in locating the stationary lights, to which the submarine bells and transmitters have been fixed. Two electric wires are run from the chart room through casings to the bows of the vessel and made fast to the outer hull about midway between the keel and the water line.

By placing the port or starboard receiver to his ear the officer on duty can easily discover on which side the lightship is and detect how far the ship is away from it.

Captains of liners coming into New York have got the Nantucket Lightship 10 miles away and steamed slowly right to it and got their correct bearings in dense fogs during the winter. The bell must be fitted on a stationary vessel, but emergency submarine bells can be carried on moving steamers and put over the side in a fog in time of danger, so that another vessel can locate her position by the sound of the bell.

There is a disk bell, too, which can be used in lifeboats in foggy weather to indicate their position to any ships coming to their assistance. This is a large brass gong with a clapper attached which can be struck by a lever worked by a line from the boat when the bell is to be rung. The United States is ahead of Europe in the use of submarine signals, having 49 lightships equipped with the apparatus. A wireless telephone has been installed on the Vaterland, through which people on board have talked with friends ashore in Hamburg at a distance of 100

miles at sea. This telephone requires special instruments, however, and it will be some time before the invention is perfected sufficiently for it to be used generally on board ships.

New Mode of Lowering Boats

Patent davits, too, have been installed recently on liners of the Olympic, Vaterland, and Aquitania class, which will lower boats over the side one after another without capsizing, it is claimed, even when the deck of the ship is listed over to a considerable angle on either side.

Captains of liners, who were interviewed by the writer on the subject of what could be done for the better protection of life at sea, suggested that the companionways for exit to the upper deck might be more uniform on all ships instead of being tucked away in many instances at the whim of the designer, and that they should also be wider and more plentiful.

As passengers can never be made to understand plans, it would be better to affix large oil lamps with red glasses in the center of each alleyway, indicating where the companionway or staircase leading to the decks was situated. Incidentally, the passengers themselves might take a little interest in their own protection, the captains suggested, by examining their lifebelts when they went on board and trying them on, so that in case of accident they would know where to find them and adjust them in the dark if the cabin lamp went out.

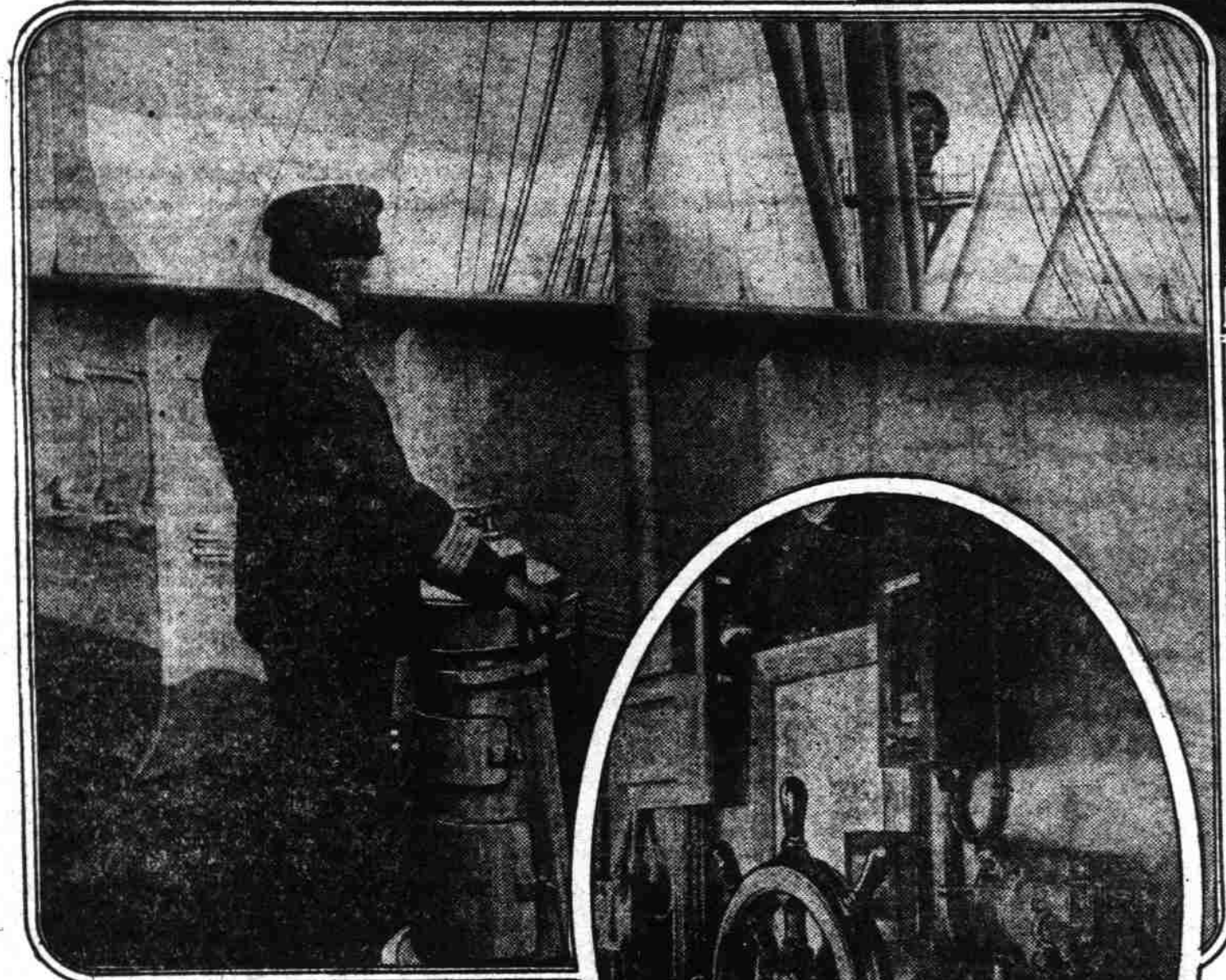
It would also be a good thing for passengers to find out the nearest means of reaching the boat deck from their cabin and to realize that in spite of all the precautions taken by the builder of the ship and the officer on the bridge the sea sometimes takes its toll as it has done unfortunately during the last two years.

Encouraging Officers.

Shipbuilders are endeavoring to construct vessels for the passenger-carrying trade in the Atlantic that are as near unsinkable as human skill can devise, and it is suggested by captains of experience that the steamship companies should endeavor to get the highest grade of young men obtainable to train up as officers, and eventually to be commanders of those vessels which require brains to navigate them in time of need. The various companies have realized this recently and raised the pay of their officers all round and given them better quarters in the new ships.

At the present time the average pay of the Captain of an Atlantic liner is not over \$4000 a year, and there is only one commander who draws \$6000.

Certain companies give their commanders \$1000 a year for what is called conditional money. Half of this amount goes into the pension fund and the remaining \$500 is given the captain in cash. That is, unless he meets with any slight accident, such as knocking a small hole in an iron shed and doing about \$100 worth of damage, touching the mud, even without injury to the ship's hull, or getting two of three ventilators washed overboard by a big sea. In this event the captain really loses his bonus for two years, and the whole amount the following year is swallowed up by the pension fund. This is what the directors of the companies call disciplining their commanders, who in turn describe the action as treating them like naughty school children instead of men who hold, when they are afloat, one of the most responsible positions in the world today.



Search-light control.

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Two Ships on Patrol.

The two vessels employed on this ice patrol, the Seneca and the Miami, from March 1 to the end of July, are equipped with wireless apparatus, and send reports daily to the hydrographic bureau in New York of ice conditions. These reports are sent to the steamship companies to hand to their commanders. In addition, individual notices are sent to the different ships at sea.

The establishment of the patrol has also encouraged captains and officers to take notes of any icebergs they may pass and report their exact location to the nearest patrol steamer.

Another step toward protecting life at sea has been made by building new ships with double bottoms divided into compartments by transverse and longitudinal bulkheads which carry right through to the main deck, so that in case a ship's hull is pierced by an iceberg like the Titanic she would not founder, at least for many hours, by which time her passengers and crew could have been saved in the boats.

The White Star line sent their biggest steamship, the Olympic, back to Belfast to be ripped open and fitted with the double skin, or hull, at a cost of more than \$1,000,000, in order that she should be safe in every respect. The Mauretania and the Lusitania had been built that way because the ships



Wheel to close bulkhead doors.

make his passage across the Atlantic in a certain time he is looked upon as being unfortunate or unlucky and others are promoted over his head.

One well known captain trading between New York and a European port is famous in shipping circles for the precautions he takes, especially in a fog, when he will stop dead, if it is days, until the fog lifts and he can see a clear sky ahead.

This qualification is so well known to the traveling public that numbers of business men who cannot afford the time to go to Europe themselves send their families on his ship.

It is highly probable that the steamship lines will hold a conference themselves to adopt stringent rules regarding navigation in fog, which will also be taken up by the marine insurance companies who have been heavy losers recently through the loss of the Titanic, Volturmo, and Empress of Ireland.

Another move in the direction of safety was made by the steamship companies in altering the course for their steamers on the Atlantic according to the ice reports received from the patrol ships. Within the last few days, owing to the prevalence of ice near the tracks, the course has been shifted 40 miles further to the southward to avoid all risk of collision.

Years ago, when steamers were smaller and slower, it was the usual

passengers might get a good view. Today if a captain passes one within 10 miles of his ship it sends a thrill through his passengers and is reported by them on arrival in port as a narrow escape.

Next to the ice patrol in importance for safety at sea, in the opinion of experts, is the regulation regarding wireless apparatus made by the United States government, which came into force a year ago.

All vessels trading to this country, carrying 50 or more persons on board, must be equipped with an apparatus capable of sending messages at least 100 miles. On the larger passenger liners this distance is increased to 200 miles, and each liner must carry two operators, so that there will always be one man on duty.

Wireless Precautions.

In order that there should be an opportunity for the operators to hear distress calls sent out without any interruption by commercial messages, the companies close down their wireless apparatus on their steamers for commercial purposes every night from 10 to 12 o'clock.

A fire patrol with trained firemen, who go around at night in all parts of the ship and make reports at certain points, as is done in big hotels, is a safeguard against the danger of a disaster by fire at sea. In addition,

FAMOUS TRINITY HOUSE IS NOW 400 YEARS OLD

TRINITY HOUSE, which celebrated its four hundredth anniversary recently, is famed across the Seven Seas. The first general lighthouse and pilotage authority in the United Kingdom, it has played an important part in nautical affairs throughout the period during which Britain has been the mistress of the oceans.

The organization, an association of master mariners, was an important institution at the time, in 1514, when it was granted its first charter by Henry VIII, the anniversary of which event has recently been observed.

The charter declared that the organization was given that document "for the relief, increase, and augmentation of the shipping of this realm of England," while the body was described as "the guild or fraternity of the most glorious and undividable Trinity of St. Clement."

The "fraternity" idea has been maintained and the guiding officials of Trinity House are known as Elder Brethren, there also being Younger Brethren. There are 10 acting Elder

Brethren, of whom one is a retired officer of the navy, nine being retired commanders of the mercantile marine; there are also two Elder Brethren who have retired from the active list and 11 honorary Elder Brethren.

On the list of Elder Brethren are King George, the Duke of Connaught, Premier Asquith, A. J. Balfour, Winston Spencer Churchill, Lord Rosebery, Prince Louis of Battenberg, the Earl of Selborne, the Marquess of Crews, and Lord George Hamilton.

The present duties of the Elder Brethren have reference—in addition to lighthouse and pilotage matters—to buoys, beacons, and attendance at the admiralty court to act as assessors. The brethren also advise the board of trade in nautical affairs. Until 1854 all dues were collected by Trinity House, and until 1874 the Elder Brethren examined masters of the navy.

The present income of the corporation from light dues is \$1,500,000 yearly, which goes for the maintenance of the lighthouse and coast marking system of England and Wales, under the financial control of the board of trade.

Trinity House also administers some charitable trusts for impecunious master mariners and their widows.

Trinity House, whose headquarters is now in London, originally was located at Deptford, Kent. Henry VIII made a royal dock yard at Deptford, it being the station where outgoing ships were supplied with pilots, and thereafter the organization rapidly developed in importance. Henry VIII gave to Trinity House the direction of the royal dock yard.

The institution was founded by Sir Thomas Spert, commander of the ship of the line Harry Grace de Dieu and controller of the navy.

Queen Elizabeth conferred upon the corporation a grant of arms in 1553, and intrusted it with its chief modern duty by giving it authority to create beacons and other marks for the guidance of navigators along the coasts of England. These duties Trinity House has ever since carried out. The institution in Elizabeth's time was also recognized as the authority in the construction of vessels for the royal navy.

Prior to 1755 the offices of the corporation were moved to London, and in 1798 the headquarters was established at Trinity House, Tower Hill, the present address.

In 1836 an act of parliament gave the institution authority to purchase from the crown, as well as from private proprietors, all interest in coast lights. For the maintenance of lights, buoys, and other aids to navigation Trinity House was given power to raise money by tolls.

By its charter it is provided that the active governing body should "consist of master, wardens, and assistants, numbering 13 in all, and elected annually by the brethren." In 1604 the brethren were divided into Elder and Younger Brethren. In 1609 the sole management of affairs was conferred on the Elder Brethren, the Younger Brethren having a vote in the election of masters and wardens. But it is the acting Elder Brethren who discharge the practical duties.

It was Trinity House which by a by-law in 1687 made a written agreement between the master and crew of a ship compulsory.