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SUB-MARINE PHONE ON COLUMBINE

**LIGHTHOUSE TENDER FULLY
 EQUIPPED WITH APPARATUS
 FOR SUB-MARINE SIGNALING
 WITH LIGHTSHIPS.**

The handsome lighthouse tender Columbine, Captain Charles Richardson, commanding, has just been fully equipped with a sub-marine telephone, the work being completed yesterday noon by Mr. Percy A. Richards, representing the Sub-Marine Signal Company, of Arlington, Mass., and the splendid innovation works like a charm and charms all who investigate it.

A reporter for the Morning Astorian had the good fortune to meet Mr. Richards yesterday shortly after the completion of the columbine's installation and was treated to a clever dissertation on the theme by this skilled operator, who is quite as clever a talker as he is a workman. This gentleman says his company has patented the remarkable invention in 25 countries and has branch establishments at London, New York, Liverpool, and Norfolk, Virginia; and is busy with a perfect mass of contracts, including the equipment of 12 of the United States lighthouse tenders, the Columbine, just completed, being among them, and the first active ship on this coast to be rigged out with the valuable apparatus.

The purpose of the system, as Mr. Richardson explains it, is to locate the position of a lightship off any coast, under any and all weather conditions, fog, storm, wind, current, or what-not, interfering; fog being the principal impediment considered in the sum of service which this clever invention contributes.

The lightship itself is equipped with a closed bell which is swung out-board from davits and is submerged 25 or 30 feet below the surface, and there plays to and fro, under the operation of a compressed air device, or with the ceaseless motion of the ship above, sending its clear-toned, far-reaching, welcome sound, to whatsoever ship or steamer is equipped with a receiving apparatus to detect it, anywhere within a radius of from five to twelve miles distant. The sound traverses its water environment to a uniform distance in all directions, undisturbed by the fury of gales or the weight of fogs above, and is effective always for a distance of from three to five miles; the play to larger compasses being actual enough, though rare of record, a number of cases having been reported to the home-company at Arlington; the reach of the sound being governed in a great measure by the speed and draft of the receiving vessel, a deep draft and slow speed giving the best results.

When the receiving ship picks up the sound of the light-ship's bell, it can easily estimate the distance between the ships, and many pilots have claimed to have gotten it within one point of the compass. The receiving apparatus, such as has been installed on the Columbine, consists of two microphone instruments which are located down in the fore-hold of the vessel, in two tanks, one to starboard, the other to port. The sound of the distant bell, coming through the water, is caught by these instruments and transmitted to the pilot house above by means of suitable electric cables; and upon the wall of the pilot-house is located the receiving instrument, handsome and compact, with openings in the face to exhibit the signal, "port" or "starboard," from whence the sound has come, and "ahead" also if that shall have been the direction. Each of these signs are lit by a tiny electric light when it is in operation and the metallic case is embellished with two telephone receivers and a switch for listening at either the starboard or port side as the case of call may require. The listener at the instrument compares the intensity of sound on the two sides, and the side receiving the greatest volume of sound is the side nearest

the lightship, and this determines the course to be steered, to lay straight for which, it is only necessary to head the ship about until the sound is of equal volume in both receivers, which is certain to give unfailing direction. The observer is also able to closely approximate the distance by the distinctness of the sound when it is first received and its increasing volume as the approach is subsequently made toward the lightship.

The lightships, during a heavy fog, usually strike the bell so as to signify their own official number; but in cases where that number is made up of too many numerals, recourse is had to an understood code which reduces the signal to the numerals "two," "three," "four," and "five," the principle of action being the same as applies to the numerals in a municipal fire-alarm service.

The whole system is as simple as it is beautiful and valuable, and is fast becoming a standard feature of marine equipment everywhere. Lightship No. 67, now berthed at the buoy-dock at Tongue Point, was the first Pacific Coast vessel to be equipped with the apparatus, and the relief ship, No. 76, now on duty off Umatilla Reef, was the first to use the device in deep water service. The light-house tender Heather will be the next objective for Mr. Richards' fine skill, and when she is properly rigged out, he will install an outfit on Lightship No. 50 now off the Columbia River bar; and in turn, will serve the lightships off the San Francisco bar, and Blunt's Reef. He reports, also, that Lightship No. 88, about to leave New York City for this coast, to relieve No. 50, off this bar, is fully equipped with the device, as are practically all the lightships on the Atlantic seaboard, and on the Great Lakes.

It will be remembered that the sub-marine telephoning test recently made in the East as between the sub-marine torpedo boats of this government were fitted out with these same fine instruments and the remarkable results attained were due to the precision and perfection with which they worked on the Octopus and her sister ship. The test then made was under the manipulation of the contracting builders of the vessels, and a conversational code was devised and used for the occasion with extraordinary success; and it is not beyond the possibilities, that sooner or later, a code of the sort will be arranged and applied to the betterment of this advantageous service.

It is an American invention, but was first taken up by the Canadian government before the Washington authorities; but it is such a character as to make it amenable anywhere on the face of the earth, and its utility will be universal before many years have elapsed. The lighthouse tender Armeria, which was sent out from New York, to this station, brought the marvel along with her and it is in constant use there.

Mr. Richards is under orders to board the steamship Rose City on her maiden voyage here from San Francisco, and survey her with a view to the immediate installation of a fine plant; in fact, he indicates that there is plenty of work ahead for him in the interests of his company and the marine world of the Pacific, for some time to come.

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BOSTON, Jan. —A call for a meeting of colored citizens to be held at Philadelphia, April 7, has been sent to representative colored men all over the country. The call says the conference is to have special reference to the demands to be made of political parties and to determine what candidates for the presidency will most deserve the support of the colored voters.

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◆ first, then add the whiskey. Use
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 ◆ called by similar names. This
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 ◆ so makes wonderfully effective
 ◆ liniment by putting a teaspoonful
 ◆ of the raw oil into a saucer-
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