

are affected; and in such cases the Compass Inspectors must be satisfied with the efficiency of the compasses before a Compass Certificate is issued.

It has not been found necessary to delay any vessel owing to her compass being found inefficient, but in isolated cases it has been found advisable to restrict a ship's sphere of operations unless a further adjustment is performed.

Some overseas vessels visiting this Dominion are fitted with a gyroscopic compass, and it would appear to be used by them with both advantage and satisfaction.

The gyroscopic compass has not yet been adopted in any of our local trading-ships, and the magnetic compass appears to maintain its supremacy for general use in these waters, its redeeming feature being that once properly installed and carefully guarded against interference it performs its directive functions without application of artificial energy or power, such as is required by the gyroscopic compass for the purpose of maintaining the necessarily constant speed of its rotor.

It is satisfactory to see that the Department's Inspectors of Compasses at the various ports have shown that they are keenly alive to the necessity of the compasses of ships, on which so very much depends whilst they are at sea, being maintained in an efficient condition.

MARINE CASUALTIES.

During the year a number of marine casualties to ships have occurred, the majority of which were surrounded by circumstances peculiar to each individual occurrence; most of the casualties being slight and of a miscellaneous description. Several were grounding casualties causing little, if any, damage, and could be attributed to shallow harbours in which vessels are required to navigate with little depth of water. Collisions have been few and mainly confined to vessels of small tonnage plying within restricted limits. Casualties have, where necessary, been investigated by holding preliminary inquiries, and, where circumstances appeared to justify such, magisterial inquiries have taken place.

In all, ninety preliminary inquiries were held, and in ten cases it was found desirable to hold magisterial inquiries. Generally speaking, the results of the inquiries show the evidence tendered to have been fairly weighed.

Ships totally lost within the Dominion during the year were: The schooner "Warlord," 98 tons, which was blown ashore at Hawke's Bay; s.s. "Ngahere," 556 tons, at Greymouth when leaving that port; s.s. "Wakatu," 95 tons, stranded at Clarence River entrance in bad weather; s.s. "Rama," 244 tons, struck a rock at Chatham Islands; s.s. "Konini," 833 tons, a new vessel, stranded in Foveaux Strait, in weather of low visibility; and s.s. "Ripple," 174 tons, which foundered off Cape Palliser. Of the foregoing, except in the case of the "Ripple," no lives were lost, the crew of the "Ngahere" being removed from that vessel to the shore by aid of the rocket apparatus which is maintained by the Greymouth Harbour Board. A return of wrecks and casualties to shipping during the year is appended.

NOTICES TO MARINERS.

Navigation warnings, pertaining to rocks, shoals, or other obstructions to navigation, changes in lights, buoys, beacons, signals, &c., or any alteration in respect of "aids" to navigation, changes in harbours, and anything affecting the navigation of our own and visiting ships, also information of importance to ships in respect of other localities and information which has been published by the Imperial Board of Trade, has been published from time to time, as has been found necessary.

RADIO DIRECTION-FINDING FOR NAVIGATIONAL PURPOSES.

The progress of radio direction-finding in the older countries has been closely watched, and the question as to advantages which one system may have over another is becoming more pronounced. The first system to be extensively adopted, by which a wireless-equipped vessel became dependent on a shore station for its bearing or line of position, could be used for that purpose only; whereas the system subsequently adopted, by which a vessel with its own radio direction-finding equipment could obtain its own bearing on line of position, could be used with advantage in other ways; particularly it becomes the most valuable "aid" for the purpose of avoiding collision in foggy weather and for locating a wireless-equipped vessel in distress. The radio direction-finder is now found on many vessels; other vessels are being fitted with it, and its future extensive use appears to be assured. From a navigation point of view when obtaining a radio bearing by a shore radio station in foggy weather, it is desirable that the shore radio station should be at or near a salient point on the coast-line, and this is made possible by the installation of a radio beacon at or near an existing lighthouse. As indicated in last year's report it has been decided to establish a radio-direction-finding plant at Cape Maria van Diemen. Instructions were given for the assembly of the requisite equipment and this has been procured, but the automatic interrupter, an essential part of the apparatus, is not yet available. It was intended to make this in New Zealand, but the skilled officer of the Post and Telegraph Department, who was to carry out the work, unfortunately died and the part will now have to be imported.

While the departmental officers have proved the efficiency of radio direction-finding for ships to their own complete satisfaction, and while their experience coincides with that of older countries which have developed this navigational aid, its value is restricted for the time being by two factors: the conservatism of shipmasters and others who have had no actual experience of its reliability and value and the reluctance of shipowners to depend upon a navigation aid which many of their shipmasters view with doubt. It is not unnatural therefore that shipowners are reluctant to incur the cost of installing the necessary equipment.