

was necessary to be very chary in undertaking to contribute towards the cost of erecting a lighthouse at the Snares, as such a contribution would form a precedent which might lead to large expenditure. I pointed out that if such expenditure was made for the erection of lighthouses on dangers in any ocean track much frequented by British vessels, it would be a most judicious expenditure, as it would tend to the preservation of human life, and of British vessels, and their cargoes, most of which were insured in offices in the United Kingdom, or in foreign or colonial insurances offices having a large British proprietary, so that the loss of such vessels and their cargoes really falls in great part on the United Kingdom and not on the colonies. I gathered from Mr. Trevor that he had no doubt that any representation on this subject would receive due consideration from the Home authorities; but the impression conveyed to my mind by his remarks did not make me sanguine that if such a representation were made, it would be likely to lead to the grant of any pecuniary assistance from the Imperial Government towards the erection of this light.

MINERAL OIL.—On my way from Quebec to New York, I stayed for a couple of days at Boston, where there are extensive mineral oil works. I made inquiries of the Oriental Oil Company, who have the reputation of supplying only first class oil, and found that oil of 125° fire test could be supplied at that time alongside the vessel, in strong tins and boxes, at 22 cents. currency per gallon; and Imperial oil, 160° fire test, at 28 cents. per gallon. I learned that freight by a vessel then loading for Dunedin would be 50 cents. per foot, which would be about 10 cents. per gallon, so that the Imperial oil could be laid down in New Zealand for 38 cents. currency, or about 1s. 6d. per (American) gallon.

I have little doubt, from its high fire test, which is 30° higher than the standard fixed for oil used in the English lighthouses, that the American oil will be found to answer admirably for use in lighthouses. The saving by using it in New Zealand, if present rates of freight are maintained, would be about £180 per annum for the present lights, and £420 per annum when the lights now ordered are lighted. In order to settle beyond doubt whether this oil is suited for lighthouse illumination or not, I ordered a case of it to be sent to Messrs. Stevenson, who promised me that they would have it tested by Dr. Macadam, and let me know the result.

WEATHER REPORTS AND STORM SIGNALS—At the Meteorological Office, I explained to Captain Toynbee, the Marine Superintendent of the establishment, what had been done in New Zealand towards establishing a system of weather reports and storm signals. He said he considered that very valuable results might follow from the careful study of meteorological observations taken at various places in New Zealand; that in making weather forecasts, New Zealand would be greatly assisted when the cable was laid between it and Australia, as he thought it would be found that the general course of storms in the South Pacific would be from west to east; that observations transmitted from Tasmania would therefore probably be more useful than from any other point. He said that much attention had been directed to this subject by Mr. Meldrum, Director of the Observatory at Mauritius, where lengthened observations had enabled him to issue weather forecasts which proved to be very reliable, and were highly appreciated in Mauritius. He advised me to write to Mr. Meldrum, explaining our position, and asking his opinion as to what would be found to be the general direction of gales in the South Pacific, and also whether New Zealand, owing to her isolated position, might expect to be able to establish a system of weather forecasts which would be of any value. Accordingly, on my passage out, I wrote to Mr. Meldrum from Aden, in order that my letter might reach him by the following mail steamer leaving Aden for Mauritius.

Captain Toynbee told me that the most useful warnings received in his office were those from Newfoundland and from the United States, as most of the severe gales travelled from west to east; for this reason the warnings received from the Continent of Europe were not of much value to England for weather forecasts, whilst those sent from England to places on the Continent were of great value for this purpose.

Aneroid barometers I was told were useless for meteorological purposes, except after having been carefully compared for a long time with a standard mercurial barometer. The best instrument now known is the Kew barometer, made by Adie. Captain Toynbee would be glad to procure a supply of these for the New Zealand Government, and would see that they were properly tested before they were sent out. He frequently did this for several of the colonies as well as for foreign Governments. I gathered generally, from Captain Toynbee's remarks, that he considered that it would be desirable to go on with the weather observations in New Zealand; but that careful study of those observations for some time would be necessary before forecasts of any value could be made. He said he should be happy if he could at any time assist the New Zealand Government in any way in connection with this subject, and that he would attend to any communications they might send to him thereon.

TRAINING SHIPS.—I procured at the Marine Department of the Board of Trade a return, ordered by the House of Commons to be printed in February last, which shows that there are seventeen training ships in the United Kingdom, classified as under:—

Two ships: "Conway," at Liverpool, and "Worcester," at London, for gentlemen's sons only, who are trained to serve as apprentices or midshipmen, to become officers. The entire cost of these ships is provided for by the pupils' fees, which are 50 guineas and 55 guineas per annum respectively.

Eight Ships: Certified by the Secretary of State as Industrial Schools under "The Industrial School Act, 1866." Cost of maintenance mainly provided by the Government.

Four Ships: Independent—maintained entirely by private subscriptions.

Three Ships: Reformatories—maintained at the public cost.

These ships have accommodation for 4,255 boys, and there were at the end of last year 3,754 boys actually on board of them.