

fore made with Mr. Dobson, the District Engineer, to set a number of men to work on this clearing ; and on the return of the "Luna," by way of the West Coast, from the trip she made afterwards to Foveaux Strait, Captain Johnson found the clearing completed, and was enabled to take accurately all necessary bearings. The order for the apparatus was sent home in December ; and I expect very shortly to receive from Messrs. Stevenson a drawing showing the exact size of the lantern, when the construction of the tower will be at once proceeded with, so that it may, if possible, be ready to receive the lantern and apparatus immediately they reach the colony. I venture to trouble you with this detailed account of the steps which had to be taken in connection with the Cape Foulwind light, because similar steps will have to be taken before the erection of many of the projected lights can be proceeded with, and because I believe that a very common opinion with regard to lighthouses is, that all that has to be done is to send to England for a complete lighthouse apparatus, of the most approved and modern design, in order to get out exactly what is wanted ; but a very short experience shows how entirely erroneous this opinion is. Lighthouses so ordered would, as a rule, be unnecessarily expensive, and would rarely be suited for the localities they were intended for. A notable instance of this is afforded by the Mana light, which was ordered early in 1863, for Cook Strait, before the site on which it was to be placed was fixed upon. The iron tower that was sent out was 48 feet high, when one less than half that height would have been more suitable ; and the illuminating apparatus was made to show all round, when one with an apparatus to illuminate the arc to seaward of about 250° was all that was required. It will be seen, therefore, that it is indispensably necessary that the site of every lighthouse should be carefully examined and surveyed before the order for the apparatus can be prepared ; and it is, moreover, necessary to ascertain that a practicable road to the selected site can be made from the nearest safe landing-place. In some places, roads of considerable length, and over difficult ground, have to be made before the materials required can be conveyed to the site on which the lighthouse is to be erected ; this, of course, greatly enhances the cost of the light. In the case of the lighthouse at Nugget Point, a road had to be made for a considerable distance, at a cost of £719 10s.

*Lighting of Cook Strait.*—The necessity for the erection of the Tory Channel light was urged on the ground that it would complete the lighting of the narrow part of Cook Strait. I felt constrained recently to represent to you that I thought that it would be unadvisable now to proceed with the erection of this light. The site was fixed upon by the late Marine Board, for the double object of marking the entrance to Tory Channel, and, in conjunction with the light on Mana, of facilitating the navigation of the Strait. The reports of the Board show that, whilst it regarded the Brothers as the most suitable site for a light for the purpose last named, on account of their prominent and central position and of their proximity to hidden dangers, yet, as the cost of erecting and maintaining a light on them would greatly exceed the means placed at the disposal of the Board, it decided upon recommending the adoption of the two lights named above, instead of a single light on the Brothers. The opinion of shipmasters who trade through the Strait is now, I believe, entirely in favour of a light on the Brothers ; and those best acquainted with the entrance to Tory Channel strongly condemn the project of placing a light there, as they say that, owing to the strong tide and very narrow entrance, it would not be safe to enter at night, even with the assistance of a light ; and that such a light would probably have the effect of luring vessels to destruction, rather than of assisting them to avoid the dangers by which the navigation of that locality is beset in dark and stormy weather. They maintain that on no account should the entrance be attempted except in the daylight. With a light on the Brothers, there would be no necessity either for the Tory Channel light or the one on Mana ; both could be placed on other parts of the coast. The one ordered for Tory Channel would probably answer very well for Cape Egmont, where a light is urgently required, and the Mana light could be placed on whichever of the sites for new lights it would be found best suited for. If, from any cause, it should be found impracticable to place a light on the Brothers, then the character of the Mana light should at once be altered, to distinguish it from the fixed light at Pencarrow Head, which it is liable to be mistaken for, as was shown in the evidence given on the inquiry into the wreck of the "City of Newcastle" in November, 1872, and again in the recent case of the wreck of the "Cyrus."

*Manukau Heads Lighthouse.*—The contract for the tower for this light and for the keeper's dwelling, at a cost of £2,421, was let on the 16th October. The designs were prepared by the Marine Engineer, and the whole of the work has been satisfactorily carried out under the directions of Mr. James Stewart, C.E., the resident engineer of the Public Works Department in Auckland. Although not coming within the period to which this report relates, it will be convenient here to state that the Manukau Lighthouse is now complete in every particular, and that it will be lighted up on the 1st of next month. It is a third order dioptric light, with a glass mirror, and is provided with lamps to burn paraffin, fitted with Captain Doty's patent burners. In a trial which was recently made, the light was found to burn with a clear white flame, and there is every reason to believe that this class of luminant will prove highly effective, and much more economical than that heretofore used, viz. colza oil. As soon as this paraffin lamp has been proved beyond doubt to be superior to the ordinary lamps in general use, steps should be taken to have all the lighthouses throughout the colony fitted with lamps of the same description, which, in addition to improving the light, would effect an annual saving of about £300 in the cost of oil, at the present rate of consumption.

*Napier Light.*—At the same time that the Manukau light was ordered, a fourth order light was ordered by this department, at the request of the Provincial Government of Hawke's Bay, for Napier. This has been placed at the Napier Bluff, and being a harbour light was paid for and will be maintained by the Provincial Government. The cost of the lantern and apparatus amounted to £411 14s. 7d.

*New Lights.*—A sum of £35,000 was voted by the Legislature last Session for the erection of additional lights, which are urgently required for the safe navigation of various parts of the coast. The localities named for these lights were : Cape Maria Van Diemen, Moko Hinou Islands, Portland Island, Tory Channel, Cape Saunders, Western Entrance to Foveaux Strait, and Cape Foulwind. Captain Johnson, of this department, was despatched to the South by the "Luna" in February last, and was instructed to "examine the coast at Oamaru, Moeraki, Cape Saunders, and West Cape, for the purpose of fixing upon the most suitable sites for the new lighthouses it was proposed to erect at or near those places."