

ten were hatched after the 50th day. Dr. Williamson says, "The cooling was doubtless not sufficiently low. I think a slightly lower temperature—34° to 35° Fahr.—would not injure the ova, and would probably be sufficient to retard the ova for the requisite period." The ova were attended to practically every hour of the night and day.

The difficulties to be contended with on board ship would be considerably increased, and it would be necessary to have the cooling and filtering apparatus fitted up in as perfect a manner as possible. Mr. Adams has constructed a small water-wheel and model box to hold the revolving plates, and I think it would be advisable to have a full set of the necessary apparatus made at this end. A very great advantage would be gained by making the collection of ova at Plymouth, where Dr. Allen states they could be secured in December or January. Dr. Williamson has kindly consented to assist in the experiment at whatever port the trial is to be made.

I wish also to point out the desirability of replenishing the stock of lobsters and crabs, and would suggest that if a trial shipment of herring-ova is to be made this year, every other inch of available space in the chamber provided should be fitted up for this purpose. The overflow water of the herring-boxes cooled to about 34° would go a long way towards maintaining a sufficiently low temperature (about 60°) for the lobsters and crabs.

I have, &c.,  
F. ANDERTON.

The Marine Fish-hatchery Board.

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The MARINE ENGINEER to the SECRETARY, Marine Department.

SIR,—

15th June, 1912.

I have the honour to report as follows on the various works dealt with during the year ended 31st March, 1912:—

*Tuahine Lighthouse.*—The construction on the foreshore of a concrete pedestal to carry this light, which had to be removed from the position on the hill through a slip, has been completed, and the permanent light apparatus has been erected on its summit, and is now in use. The construction of the pedestal was carried out by contract, the light apparatus was erected by the Department's artificer, and on its completion the whole was handed over to the Gisborne Harbour Board, which body attends to the maintenance of the light.

*Hokianga.*—The erection of the new residence for the boatman has been completed.

*Kohokohu breastwork:* The construction of a timber breastwork to the east of the wharf, in order to provide a repository for ships' ballast and sawdust from the sawmill, has been put in hand. The reclamation thus protected will provide some useful land in addition to the very limited existing flat ground which is suitable for township purposes.

*Kaipara.*—Shelly Beach beacon: The erection of the concrete pedestal which is to carry an automatic light has been nearly completed. The apparatus for the light is at Kaipara awaiting the erection. This work has been very much delayed through the constant westerly winds which have prevailed during the past season, the work having to be entirely abandoned on this account for some time in the spring.

*Removal of rocks in Kaipara River:* The deepening of the channel over the rocky bar a short distance below Mount Rex Wharf, supplementary to some work which was carried out a short time ago, has been put in hand. When this work is completed, any boat which can proceed up to Helensville will be able to navigate the channel at all states of the tide. The present position with regard to this bar is that there is a channel near the centre of the river but a little to the south, and there is also a channel close along the north bank. A small extent of rock remains between, which the money available would not permit of removal.

*North Cape Lighthouse.*—Apparatus for the new lighthouse to be erected at the North Cape has been ordered.

*Cape Brett.*—The determination of the correct latitude of Cape Brett Lighthouse is under investigation by the Survey Department, but considerable difficulties have arisen through the somewhat incomplete character of the existing geodesical work. It is anticipated that the work will be completed shortly.

*Chicken Island Lighthouse.*—The work in connection with the erection of an automatic light on the outer Chicken Island is in the following position: The apparatus has arrived; the small pedestal or tower to carry the apparatus has been designed, and tenders for its construction are now being dealt with; the site has been prepared to receive the pedestal; the tracks necessary to give access to the light from the foreshore are nearly completed.

*Mokohinau Lighthouse.*—A report was prepared of the work required to improve the drainage in connection with the keeper's dwelling.

*Manukau Leading-lights.*—A £50 grant for improving the road to Huia, which will ultimately give access to the lights, has been expended.

*Cabbage Bay Wharf.*—Plans for this structure were prepared, and the erection was carried out by the County Council. The work is now complete.

*Mercury Bay.*—The Waiawa River Wharf and snagging were examined and reported on.

*Auckland Beaches.*—The various beaches in the vicinity of Auckland and Coromandel Peninsula were examined, and reported on with regard to the issue of permits for the removal of gravel for building and other purposes in and around Auckland.

*Auckland—Kaipara Canal.*—A short report was prepared on the proposal to construct a canal connecting Auckland and Kaipara Harbours.

*Auckland Naval Base.*—The existing store and yard accommodation are being examined in conjunction with the Defence Department with a view to reporting upon their suitability in connection with the requirements of His Majesty's Navy when Auckland becomes its base.