

protected by concrete; and in those cases where the magazines were not commenced I have provided brick and concrete structures. These practically cost no more, are imperishable, and in every way more suitable for the preservation and service of the ammunition.

New Works.—In addition to the works necessary for the guns already in the colony, complete designs have been prepared and works are well in hand for mounting fifteen out of the twenty-three new guns which have been ordered. These works are all of a thoroughly permanent and substantial nature, admit of complete protection for the men working the guns, are provided with very suitable magazines, and efficient systems for the rapid supply of ammunition, and will also be well protected from assault. In all cases where necessary, proper provision has been made for the accommodation of a sufficient garrison in the works, and proper shell-proof cover is provided for them during an action. I might add, at the same time, that no superfluous work has been done or expense incurred which could possibly be avoided. We have done away with the heavy brick arches usually heretofore adopted, and substituted old rails and concrete, at a reduction of about one-half in cost; and in many other instances made considerable reductions in cost of materials and labour, without impairing in any way the efficiency of the work. Designs have also been prepared for the mounting of the whole of the machine guns provided. These being mounted in well-protected pits and covered by steel-shields will render their fire most difficult to silence, and will effectually prevent any attempt at removing the submarine obstructions from being successfully carried out. To give the maximum effect to their fire, and also to enable them to cover a large extent of water, duplicate pits have been arranged, and means of conveying these rapidly from one position to another. Protection against landing in the vicinity of the batteries has been added to by the provision of several guns of this type (rapid-firing), mounted on travelling carriages. In some cases these will require to be horsed; but on the west side, at Wellington, and on the Ocean Beach, at Dunedin, they can be conveyed from point to point by steam, some of the present trucks on the lines being altered, at a trifling cost, for this purpose. Sufficient machine guns have also been provided to arm a guard-boat at each port; if additional protection were provided by arming the local launches with the field guns in the colony, an efficient defence could be made against any attempt at a boat attack having for its object the destruction of wharves or shipping. The carriages of these guns can easily be altered.

Submarine Defences.—Practically there were, on my taking over charge, no submarine defences. Twenty-five ground-mines had been supplied from the Naval Dépôt at Sydney, but, although these were laid down, and the work was most excellently planned and carried out, the appliances were totally inadequate, and no means were at hand for providing any permanent system of defence. A complete system of defence has now been designed for each of the ports, and very perfect equipments of submarine mining appliances and stores ordered from the War Department. Proper stations have been designed and are in course of construction at each port. These comprise all the necessary sheds for the storage of the appliances, slips and sheds for the torpedo-boats, cable-tanks, gun-cotton tanks, workshops, test-pits, jetties, cranes, and launches, where necessary. These are all most necessary, and will enable the mines and cables to be laid out with the greatest expedition during war time, and also for the torpedo corps and the Volunteers to be thoroughly instructed in their duties during peace. Immediately on arrival of the plant the mines will be fitted and loaded, all cable and other gear prepared and connected, and then stored. It will be possible, with the accommodation and appliances provided, for the torpedo defences throughout the colony to be laid down within three days of the order to commence work.

Electric Lights.—Contracts have been entered into for the supply of the most approved and most powerful electric search-lights for the harbours of Auckland, Wellington, and Lyttelton, complete with all necessary engines, boilers, projectors, lamps, and fittings. These are expected to arrive within the current month, and will, when mounted, enable the defence of those harbours to be most efficiently carried out during the dark hours. The engine-rooms, test-rooms, observing-stations, &c., required for them have all been designed, and are in course of construction.

Expenditure.—The expenditure up to the end of the financial year was £127,169 10s. 3d. (*vide* Return A). The amount voted was £200,000; the balance—£72,830 9s. 9d.—unexpended will require to be re-voted. Return A shows the expenditure in detail under the several headings. Returns are also forwarded showing the amounts required for the works, and also the liabilities for the guns, mining stores, &c., and shows what will be required to be voted for the year 1886–87. A return is also appended showing original estimated cost of the works, the amount expended thereon, and the balance which will require to be voted during the current and also next year to thoroughly complete the works. It will be seen that from the original estimate a deduction of £41,000 was made for the work of the Constabulary, 200 of whom it was expected would be employed for two years and a half on the works. As this branch of the force has been very greatly reduced, and as it will consequently be impossible to carry on the works by them as originally proposed, a corresponding amount will have to be put on the Defence loan to cover this reduction. As a large annual saving of expenditure has been effected by this reduction, the extra cost of the works chargeable to loan can, I presume, well be authorized.

Summary.—During the past ten months very considerable progress has been made with the scheme of defence. Within the next six months, provided that they are supplied in time, fifteen out of the twenty-three guns ordered from Sir William Armstrong can be mounted, and the pits and batteries for them will be completed; and the whole system of defence will be in thorough working order well within the time stated by the Government. Within three months the whole of the torpedo stations will be ready for service, and the electric-light stations completed. The machine guns can also be placed in position as soon as they arrive. I have gone carefully through every recommendation or suggestion that has been made with regard to the scheme generally, and am of opinion that it would be inadvisable to alter it in any way whatever or necessary to add to it, and I think that the original estimates of expenditure will cover all requirements.

I have, &c.,

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