

to be built one at a time instead of being carried through in sets. In any new design some alterations are found to be desirable, and such alterations were charged against the building order. These engines were completed ready for service at a cost of £3,018 each. About a year later six engines of a similar type were built at Hillside. These engines were built under much more favourable circumstances, and were laid down in sets of three. The original patterns were supplied free of cost, and, in addition, Addington supplied to Hillside all bronze, brass, and steel castings, complete boilers, all heavy forgings, quartered the coupled wheels, &c. There were no alterations to be made, and we were able to push the work through. These engines cost completed ready for service £2,628 each.

Comparing our costs with those of outside establishments, I might mention that shortly after the Wf engines were put in hand at Addington tenders were invited for the building in the Dominion of ten more of these engines, Messrs. A. and G. Price, of Thames, securing the contract. The engines built by Messrs. Price cost complete ready for service £2,940 each. Messrs. A. and G. Price afterwards built two more of the Wf engines for the Public Works Department, at £3,000 each, without Westinghouse brake, the cost of which would have been £140 per engine extra. For all these engines Addington Workshops manufactured, at an agreed-upon rate, all wheels, axles, and crank-pins complete, bronze castings, and certain heavy forgings; Hillside Workshops manufactured for all these contract engines the laminated springs, lamps, &c.

In November, 1904, orders were issued to Addington Workshops to put in hand four Class A four-cylinder balanced compound locomotives. These were a trial lot, and of a new design quite unlike anything previously in use on New Zealand railways. These engines were built singly, one being specially finished for the New Zealand International Exhibition. A large amount of overtime had to be worked on the Exhibition engine, which, of course, added materially to the cost. These engines being of an altogether new type south of the equator, the first engine had to undergo some modifications and additions before its final completion. The cost of these engines ready for service, including the one specially prepared for the Exhibition, also cost of patterns and templates, amounted to £5,522 each.

In November, 1905, an order was issued on Addington Workshops to build three more Class A compound locomotives of a modified design. These three engines were built singly at a cost of £4,956 each, complete ready for service.

To Messrs. A. and G. Price, Thames, a contract was let in 1906 for twenty Class A four-cylinder balanced compound locomotives similar to the last three then under construction at Addington. It was arranged under the contract for Addington Workshops to manufacture at an agreed-upon rate all wheels, axles, and crank-pins, complete ready for placing under engine; bronze castings; sight feeders complete; and many heavy forgings; Hillside Workshops again making all the laminated springs, lamps, &c. The rate per Class A locomotive at which Messrs. A. and G. Price contracted was £3,998, to which cost of Westinghouse brake, &c., has to be added to complete the engine in readiness for service: the total thus becomes £4,228 each. Messrs. A. and G. Price are working under much more favourable conditions than obtained at Addington, because they are able to carry on the work in sets. If the commission or profit charged against the Addington Class A engines is deducted, their net cost ready for service would be £4,310 each, which is very little more than those built under contract. Messrs. A. and G. Price have already delivered twelve of the twenty contract engines, and, although exact figures cannot be available before completion of the contract, I have their authority for stating that the contract rate per engine is much too low, and that they now consider a fair rate per engine ought to have been £4,600. With the additional cost added for Westinghouse brake, &c., the engines would then cost £4,830 each, complete ready for service, which is fairly close to our Addington cost.

In comparing the cost per ton of various engines, it should be borne in mind that the A compounds each have four cylinders, four valve-chambers, and double sets of connecting-rods and double sets of valve-gear, &c. The bulk of the work executed in Railway Workshops comprises repairs to engines and rolling-stock generally, a class of work not done in private foundries. It is not, therefore, practicable to institute comparisons, excepting in special cases, such as the manufacture of points and crossings, castings, &c.

In cases where the Department has invited tenders for points and crossings, the Addington Workshops were able to manufacture at a much cheaper rate than the tendered prices from outside foundries.

With regard to iron and brass castings, it has been found that the Department can make these at a very much cheaper rate than that for which they can be procured outside.

Steel castings are produced at Addington which for quality and cost compare favourably with those obtained outside.

I put in, for the information of the Commissioners, a tabulated statement showing the relative costs of Class LA iron wagons. It will be seen that those imported from Great Britain were the most costly, similar wagons built by outside contract in New Zealand coming next in order of cheapness, whilst those built in our Railway Workshops were the cheapest. These were the only wagons built within recent years by private foundries in New Zealand.

Coming now to the question of output, and whether it is reasonable in quantity and quality, having regard to all the circumstances: In this connection it should be remembered that precedence is in all cases given to repair-work. New work is not allowed to interfere with the thoroughly efficient upkeep of rolling-stock generally, for it is essential, for the safety and convenience of the public, to maintain existing rolling-stock in the best possible condition. This frequently seriously interferes with the progress of new work, and unquestionably adds to its cost. In the principal Railway Workshops it is necessary to have new locomotive, car, or wagon building in hand in order to keep staff employed for some days immediately following busy holiday seasons, such as at Christmas and New Year, when all existing rolling-stock is required in service, and the shops are empty of repair-work. Taking into consideration the manifest inconvenience inseparable from the carrying-on of both new and repair work under the same roof, and using the same machinery and appliances, I would submit that the output is reasonable in quantity and unquestionably of the best quality.