Sleeper-supply.—The supply of sleepers in sufficient quantities of suitable timber has always been a subject of the greatest concern. In the earlier days of the railways by far the largest number of sleepers was of native totara. It was a very durable and reliable timber, and enormous numbers have been used, and have lasted to a great age. As traffic increased these sleepers began to wear out from deficient hardness, while still free from decay. Great numbers of silver-pine were used later on, and have proved admirable for durability. At present the supplies of these timbers are diminishing and the price is rising. Birch timber has been largely used in the past, but has proved indifferent in quality through tendency to crack and warp, and is not as durable as other timbers. At a later period creosoted pine timbers were used in large quantities, and have given moderately fair results, but a difficulty arose in the regular and sufficient supply of material for the treatment, and the cost was against these sleepers. Jarrah and other hardwood sleepers have been used for years on bridges and positions where extra strength is necessary.

To keep up a sufficient supply of reliable sleepers jarrah and hardwoods have been more extensively used, with great benefit to the maintenance of the lines. More recently a trial has been made of the Powell process of preserving white- and red-pine sleepers. The first experimental lot was unsuccessful. Further experiments are now being made by the promoters of this system under altered conditions. The Department is also making similar trials, and have a plant established for the purpose. It is to be hoped these fresh experiments may be more successful than the first, and that sufficient time will be given to test results before large quantities of this nature are obtained. Meanwhile the demand for sleepers is increasing yearly, and jarrah and hardwood must be relied on for a large proportion of the supply, supplemented by such totara and silver-pine as can be obtained for use on lines of lighter traffic.

I consider the lines have been fully kept up and strengthened so as to provide for the great increase in traffic.

Deviations in Alignment and Grades.—Great improvements have been made in alignment, and reduction of gradients on deviations of the line, which have been completed in a large number of instances, some very extensive and many of minor extent. This has effected immense improvement, and has greatly increased haulage-capacity and economy.

Bridges and Culverts.—There has been an immense amount of work done in the strengthening of bridges to carry increased engine-loads, and also in many cases complete reconstruction of timber structures which have been replaced by steel.

The Manawapou Viaduct is now being rebuilt on a deviation giving improved alignment and grades, replacing the original timber viaduct with a new structure having concrete and steel piers and steel superstructure. This is the last of similar viaducts which have in turn been replaced upon the Wanganui and Napier lines. The old Manawapou Viaduct has done good service for over thirty years. Much of the timber is still sound, but increased engine-loads demand a new structure.

The renewal of eight of these viaducts has been a most important and valuable work. It was commenced in my term of office with the Kopua and Makotuku. There have been rebuilt since then, in succession, the Piripiri, Mangatera, Ormondville, Mangatewainui, and Tongahoe. The Manawapou now in hand will complete the series, and I am pleased to have seen the last of these works now in progress.

The Hamilton Bridge (over the Waikato) has been strengthened on lines decided on before I left by the addition of an extra line of steel trusses, requiring for support two additional cylinders in the river and the widening of the concrete abutments. It is a fine work, and successfully carried out. Similarly, the large span bridges at Ngaruawahia, Wanganui, and Balclutha have been strengthened for heavier engines.

Close sleepering with hardwood sleepers on bridges has also been carried out almost throughout.

Fencing.—There has been a considerable increase in the mileage of fencing. The main lines are now almost entirely fenced, and the fences appear to be fairly well maintained.

Signals.—A very great addition to the lines has been made in respect of station signals and interlocking of points and signals, which seem well arranged and uniform in pattern and working-parts, which is a matter of the greatest importance.

Water-services, &c.—Water-services, cranes, and fixed appliances of various descriptions have all been greatly increased in number and capacity. A great number of power pumps for raising water have been introduced. The great variety of types adopted I think somewhat excessive, and likely to prove troublesome in maintenance.

Buildings.—Next to expansion in details of the permanent-way, which have been mentioned, is the extension under the heading of station buildings and dwellinghouses. This has been very great. Numbers of stations have been entirely rebuilt; platforms extended to greater length and width; small shelter-sheds have been replaced by station offices with waiting and luggage rooms, and verandas over platforms. This, together with additional sidings, has necessitated in many cases entire rearrangement of station-yards. Dwellinghouses provided at country stations for employees have been largely increased in number and accommodation.

Besides what may be regarded as additions to the structures, there has no doubt been considerable increase in cost of ordinary repairs due to age of wooden buildings. In many instances worn-out buildings have been replaced by new, having much greater accommodation.

Painting.—Among other obvious improvements is to be noted the general condition of the paint-work of iron-bridge structures, ironwork in structures generally, and on buildings. This is being kept up with requirements much more fully now than formerly, when painting was liable to be in arrears by reason of pressure for retrenchment.