

effected by lifting the bodies of the narrow-gauge trucks off their wheels (without disturbing their contents) and transferring them on to broad-gauge platform-wagons. This system is in operation on some lines on the Continent of Europe, and works satisfactorily. It is also proposed to adopt the system on one at least of the newly-authorized light lines in England.

The Parliamentary Standing Committee on Railways in Victoria has given very careful and exhaustive consideration to this matter during the last three years, and has finally recommended the construction of one or two lines on the 2 ft. gauge. The following is an extract from their report for 1895:—

The objections, moreover, to a break of gauge are much more strongly pressed by those who have not had practical experience of the working of two gauges.

Mr. Mais, the late Engineer-in-Chief of South Australia, where the gauge is broken at three different places, gave the following evidence on this point: "545. Although you think the break of gauge a difficulty, it is not insuperable?—No; where the traffic is very limited, I do not think it is worth considering."

And in a memorandum forwarded by him to the Committee he adds: "I am not an advocate for any particular gauge, but I have a distinct aversion to any break of gauge which materially affects the traffic of the main standard lines, because the inconvenience and expense of transfer grows with the development of traffic; but if the question at issue is, that owing to the cost of construction of branches from the main lines being so great as to be almost prohibitive, and some means of transit must be afforded in order to develop the country, in that event I would lay down 'secondary' lines on a narrower gauge, and put up with the break-of-gauge inconvenience which would result."

The decision arrived at by the recent congress of railway authorities at Brussels and St. Petersburg on the gauge question was, "That it was not advisable to fix any definite gauge, but it was better to leave the question an entirely open one for decision as soon as the local conditions in each case were ascertained."

On the whole, therefore, although opposed to a break of gauge if we can reasonably avoid it, I do not look upon this evil as at all sufficient to deter us from constructing narrow-gauge railways if, on investigation, it turns out that a very great saving can be made in both first cost and maintenance with comparatively little attendant inconvenience, and that such railways can be worked with reasonable safety. I, however, agree with the Premier's remarks in the Financial Statement that there should be no break of gauge in respect of present authorized lines.

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The principal advantage in a narrow-gauge line is doubtless its cheapness. This does not result merely from the rails being laid a little closer together than on the broad-gauge lines, and from the slight saving in widths of cuttings and embankments thereby rendered possible, but chiefly from the increased flexibility of the narrow gauge. The narrower the gauge the sharper the turns that can be made, and sharp turns enable us to go round points that we should otherwise have to cut or tunnel through, and to traverse the heads of gullies on the solid instead of crossing them on expensive bridges and viaducts. The Tasmanian narrow-gauge railway, for example, is costing only £2,000 a mile, whereas the General Manager states that it is doubtful if it could have been constructed for £10,000 a mile as a 3 ft. 6 in. railway. I am aware that some strong opponents of narrow gauge have stated that whatever can be done with a 2 ft. line can also be done with a 3 ft. 6 in. one, but I think the weight of evidence is against this view, and existing practice is certainly against it, as wherever we go we almost invariably find that sharp curves are associated with narrow gauge. In New Zealand, for example, with a 3 ft. 6 in. gauge our minimum curves are 5 chains radius on branch and mountain lines, and 7½ and 10 chains on important main lines, but on the Tasmanian 2 ft. line 1½ chain curves are freely used, and on the Darjeeling line in India (also 2 ft. gauge) there are curves of under 1 chain in radius. With curves such as these it is possible to go round almost everything, and tunnels and heavy breast-cuttings and large embankments are almost entirely done away with, and the length of bridging is reduced to a minimum, and consequently a large saving in first cost results.