

(No. 127A.)



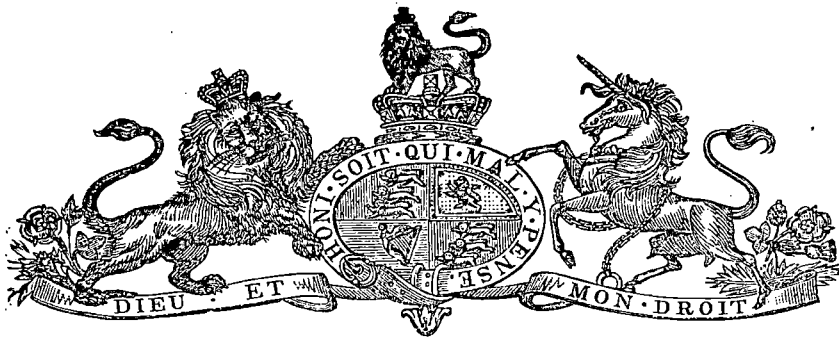
1890.

PARLIAMENT OF TASMANIA.

RAILWAY CONSTRUCTION:

FURTHER CORRESPONDENCE.

Laid upon the Table by the Minister of Lands, September 3, 1890, and ordered
by the House of Assembly to be printed, September 4, 1890.



Tasmanian Government Railways,
 Engineer-in-Chief's Office, Hobart, 29th August, 1890.

RAILWAY CONSTRUCTION AND MAINTENANCE.

SIR,

I HAVE no intention of troubling you with a lengthy correspondence upon this subject, but ask that, in justice, I may be allowed in this second letter to make one final and public reply. After perusing the letter of the General Manager in answer to my memorandum of 30th ultimo I see no reason for correction of the latter, but must ask your permission to call attention to very important points on which he is seriously in error in the former.

One of the most important to be noticed is the misleading comparison made between Main Line Company's maintenance expenses and those of the Government Lines, owing to the superficial way in which it is made. The mere percentage ratio of the more or less fixed maintenance of way charges to the more elastic and varying locomotive wagon and train service charges, &c. is a varying ratio, *and is of very little value whatever as a test of actual cost*: as a simple illustration, it is quite possible to have maintenance with a relative value *A* with other relative values represented by *B*, but while the maintenance might remain at *A* the other relative values, from increased trains, repairs of stock, agency, &c., might mount up to twice *B*; what, therefore, is the practical value of the comparison? I prefer to go down to the bed-rock of *fact as to actual cost expended on maintenance of way for each mile of railway*, and I find that the Main Line Railway cost, in 1889, £180 per mile, while the Government Railways only cost £138·6 per mile; the cost of maintenance, &c. per train mile on Main Line Railway was 15·6 pence, and on Government Railways 14·8 pence (*see General Manager's Return No. 3*) and not 16·1 pence as stated by him. You will thus see that the comparison made is erroneous, and greatly in favour of Government maintenance.

We must look to other sources than a supposed costly maintenance due to alleged bad construction, (which, however, had been deliberately accepted by the Manager before lines were opened by him,) before we can say why the lines do not pay more, and why it is necessary for the Manager to protect himself for future years (when ordinary renewals will get heavier and the adventitious gains now made out of votes are no longer available for him); and the one chief source is that of extravagance in working expenses due to the train service of the Colony being in excess of actual present requirements.

The Tasmanian Government Lines have the very highest train service, as indicated by the number of trains per day per mile, of any Australian Colony where the narrow-gauge system obtains.

New Zealand	having	5·0	trains per day per mile.
Queensland	"	5·3	" "
Western Australia	"	6·1	" "
South Australia	"	6·4	" "
Tasmanian, (Government)	"	7·2	" "
(Generally)	"	7·7	" "

When the receipts and expenses per mile of railway in other Colonies for any one year have closely approached those of the Tasmanian Government Railways, we find that the latter earn only half the profit made by these other lines, *e.g.*, Queensland and South Australia, and that the receipts per train mile fall off by 30 per cent. in consequence of the proportionately expensive train service in Tasmania.

Lack of proper economy in the actual *working expenses* of railways is most effectually concealed by providing an extravagant train service so far as the traffic requirements of the railway are concerned, for if attention be then diverted to the relative *cost per train mile*, the working expenses proper, although actually *greater* than before, appear to the uninitiated to be less. Cost per train mile is rarely a true index to absolutely low working expenses. When it is abnormally low it is

certainly an indication of high or extravagant train service, and not of economy in the working. This is shown by comparing the working expenses of the Western Line (including $4\frac{1}{2}$ miles of Parattah Line) in 1885 and 1889:

	1885.	1889.	INCREASE.	DECREASE.
Miles worked.....	86 $\frac{1}{2}$	86 $\frac{1}{2}$		
Actual Working Cost.....	£31,064	£37,992	£6928	
Cost per mile.....	£407.5	£439.2	£31.7	
Cost per Train Mile.....	45.3d.	36.3d.	—	9d.
Train Service per Mile.....	2365	2904	539 miles.	

Thus, though in the latter the increased train service (539 miles per mile) has actually increased the working expenses of this part of the Government Railways since 1885 by £6928 or £31.7 per mile, yet it appears to be lower when dependence is placed on the deceptive index per train mile, which shows that it is ninepence lower than in 1885 when the same lines were worked at a much smaller cost actually. Young or inexperienced Managers are apt to be misled by this treacherous index into congratulating themselves for greater economy in working, when it is far more likely due to the opposite principle, viz., a too generous train service which militates against the financial success of the railway.

A similar lack of experience in the working of railways has led the General Manager to conceive that when *maintenance* bears a relatively high percentage of the total working expenses of a railway, it is due entirely to a high rate of expense absolutely as regards cost of maintenance. This is a pardonable mistake to make, for it is natural for any one whose experience is limited to think so. Yet, if we reason the matter out, or, what is better, go to actual results of experience, it will be found that maintenance invariably bears the *highest* percentage to total working expenses when the total cost of working is *lowest*—i.e., when there are few trains run and little traffic. As the traffic and train service increases the actual cost of working increases absolutely and per mile, but at the same time the *percentage* of maintenance to total expenses grows less and less.

If any one doubts this, let them ask why the maintenance of suburban lines of railways in Melbourne is only about 12.8 per cent of total working expenses, although there are as high as £1237 *per mile open*, while the maintenance of the Northern system of the same Government lines represented as much as 24.2 per cent of the total working expenses, although it only represents a cost of £157.3 *per mile*. The same illustration applies in Tasmania, for the lines upon which maintenance is cheapest have the highest percentage to total working expenses. Thus the maintenance of the *Western Line* is only 39.6 per cent of total working expenses, although its actual cost of *maintenance per mile* is £176.6; while on the Fingal Line the maintenance represents as high as 57.5 per cent of total working expenses, although it is actually about £70 a mile less costly to maintain. These illustrations show how apt such references are to deceive those inexperienced in reasoning upon such matters.

In the over eager desire to show successful working, I maintain and affirm that not only has the Construction Department from time to time been made a kind of scapegoat, but that also the Maintenance branch of the opened lines has also suffered by a system of overstrain and “starvation” as it is technically termed. The maximum authorised speed has been constantly exceeded and road strained, while protests have been made to me personally by the Assistant Engineer, by Inspectors, and the Locomotive Department. The new lines, in two cases at least, have been worked with less than the normally recognised requirements of labour for new lines, and even then, as Assistant, has complained to me, the men have been taken away for other services to assist traffic gains, and the maintenance work rendered more costly by charges made (for hire of stock, wages, &c.) against his branch for the benefit of traffic receipts, to say nothing of loss of money and time in over strict staff regulations.

The unpleasant fact that from time to time friction has existed since the present Manager was appointed is to be deplored; but it is owing largely to Manager's interference with works before they come under his control, and chiefly to dealings of a non-professional man with professional work, with results that generally, and notably in case of the attack on the Arundel bridge of the Derwent Valley Railway, without even a proper examination, have fallen harmless on the Construction Department.

The Manager, admittedly, knows nothing of engineering.—(See Tasmanian Main Line Railway Case *versus* The Queen, page 86.)

I have endeavoured—I hope successfully—to prevent the friction affecting the public interest in any way; but it is much to be regretted that the two Departments cannot work with the same harmony as of old, although, from experience elsewhere under similar conditions it is, perhaps, not to be wondered at. The Department constructing the lines should be made to take full responsibility by having the onus of maintaining them at fair cost thrown upon it, and I trust that you may see your way to authorise such action as will lead to this desirable result.

In conclusion, I will deal with minor matters in Manager's reply which fairly demand some explanation or remarks from me.

With regard to unnecessary grades, two instances are quoted by him; the first I have dealt with in a special report, and the second charge, in reference to the Chudleigh line, rests upon the similar assumption that, because the two termini are on the same level the intervening country must be easy, whereas, unfortunately for the theory in this case, there is a dividing range which cannot escape observation, with an elevation of 297 feet to be surmounted. The Sorell Railway, with a tunnel at summit of the range, affords a similar illustration.

I have not observed any quantity of inferior timber to justify the strictures made. It is quite possible that pieces here and there could be hunted up, but surely there should be some large quantity in existence (the locality of which could be described) to justify the language used; and proof should be given of the bold statement that timber was used the day after it was cut. All possible precautions were generally taken, and sleeper contracts so arranged that the timber was seasoned for many months, some of it for a year or two. The extra sleepers under the lighter Mersey rail form its safety under the speeds run, but the same number is adopted on our other lines, including the Scottsdale, where it provokes no comment. This number is exceeded in much of the American practice.

The comparison with reference to working of the Western Line is made at a date subsequent to that referred to by me. I referred to the period directly after its opening. The Manager takes the period after the Contractor's maintenance had ended, but admits my statements as to the most important part of the line, on the long grade between Evandale and Launceston, where the ballast has always been largely of a quality very inferior indeed to that supplied on any of the new lines.

The Mersey Line was opened in June, 1885, (midwinter). The Manager admits that no ballast engine was out until 1887. This is most significant, and the strongest testimony that could be given in favour of the construction as against the attempt to make out that the line was in a decrepit condition. Such freedom from demands on maintenance is unusual in a country which is more or less wet and hilly.

I am largely in accord with the statements in the Departmental correspondence of five years ago which has been raked up; but the Manager omits to tell you that it referred to a time when the line was *not under Departmental maintenance at all*, but under the Contractors (whose work in this respect seldom satisfies either the Construction Engineers or the Traffic Department), and that the slacks due to sudden strain of traffic in new green wet banks, or on bad clay bottoms, was no proof at all of bad construction, but of a want of extra labour in maintenance on the part of the contractors.

Before ending this letter, I beg again to draw attention to the following remarks:—

1. The Manager has declined to open any line until by himself and his Assistant he had made examination and was satisfied.
2. That only normal labour, or less than normal labour, has been employed in maintenance.
3. That special losses by floods, or subsidence and waste of ballast, &c., have been largely provided for otherwise than out of working expenses.
4. That the balance of outlay from last-named causes is infinitesimal as materially affecting the gross working expenses, whether such balance is due to deficiency in construction or possible *lâches* of the Maintenance branch.
5. The whole question to my mind does not in any way deserve the prominence given or the sweeping charges made. The Manager in his new position naturally desires to show successful results; the working is strained, and the pressure has to tell somewhere. The Assistant Engineer is hampered, and unduly timid in dealing with lighter lines after a training solely on the heavy broad-gauge line, while matters have been complicated by the dictation of the General Manager on questions of construction, and, in some instances, when the works criticised were in no way under his control.

I have, &c.

J. FINCHAM, *M. Inst. C.E., Engineer-in-Chief.*

The Hon. the Minister of Lands and Works.

Hobart, 2nd September, 1890.

RAILWAY CONSTRUCTION AND MAINTENANCE.

SIR,

I HAVE to thank you for a perusal of the letter of the Engineer-in-Chief on the above subject dated 29th August.

In offering a brief reply I am at a disadvantage, because you require me to return the document in a few hours, and I have not access to the necessary papers, statistical and others, to enable me to reply to all the points, as they are in my office at Launceston.

With regard to the comparisons I made between the cost of maintenance of the Main Line Railway and the Government lines, I contend that my figures are correct. It is true that the *cost per mile open* of maintenance of Main Line is £180 as against £138·6 on the Government line, but the comparison is valueless without the number of trains run.

On 176 miles of Government lines 397,354 train miles were run, against 384,899 on Main Line, being 7·2 trains daily per mile on the Government lines against 9·2 trains on the Main Line. This mainly accounts for the difference.

The table showing the train miles per day is of no comparative value, as there is no similar basis of comparison. (The Engineer-in-Chief has omitted to include Victoria with 14·3, and New South Wales, 10·6 trains per mile per day.)

The statement shows the train miles per day to be 7·2 on the Government lines, but no mention is made of the larger number of services on the Main Line, 9·2.

Without statistics I am unable to deal with the whole of the statements, but I take New Zealand, which is shown to have the least number of trains per mile per day. The explanation is simple. There are lines where only three, and in some cases, I believe, only two trains *are run per week*.

Then, again, on the Western Line, the maximum load for a goods engine is 16 loaded trucks owing to steep grades. In New Zealand in many parts, especially the Canterbury Plains, 40 and 50 trucks are hauled by a single engine.

With regard to train services being in excess of actual requirements, the trains run are as follows:—Derwent Valley Line, three trains each way daily; Parattah, the same; Fingal Line, two trains, with occasional special trains for coal; Western Line, two trains daily each way between Ulverstone and Launceston, a goods train three times a week each way, and a slow train between Launceston and Deloraine, which is practically a goods train; on the Chudleigh Line, one train each way daily. I do not think these can be considered excessive, or that the public would agree to less. As an instance of the traffic on the Western Line, yesterday two extra goods trains had to be run fully loaded from Formby to Launceston, because the other trains had full loads and could not carry the traffic.

Coming further, I find a table showing that the actual cost of working the Western and Parattah Lines in 1889 cost £6928 more than in 1885.

The Engineer-in-Chief did not deem it of sufficient importance to point out that the earnings had increased by £18,760 for the same period, and that the profit on working the lines referred to in 1885 was 0·80 per cent., whilst in 1889 it was 2·32 per cent., or £5335 in 1885, as against £17,187 in 1889.

In dealing with these questions I have not cast blame upon anyone, either the Engineer-in-Chief or any officer—I have simply pointed out matters continually forced upon my attention; on the other hand, the Engineer-in-Chief endeavours to belittle me as “inexperienced” and having been “misled by want of experience in working of railways” in the letter under reply. It is painful to me to have to introduce personal matter into this controversy, or to be obliged to speak of myself.

When the Government appointed me to the position I have the honor to hold I have reason to believe that they were satisfied with my experience, both from official sources and from the testimony of gentlemen who had been officially acquainted with me for many years. As to the inference of inexperience on the value of railway statistics, I may be permitted to mention that when Provincial Governments were abolished in New Zealand and all the railways brought under one head I was appointed Chief Accountant, and established the system of accounts still in operation, leaving the position on promotion. The system of accounts came under the notice of professional gentlemen in England years after I vacated the position of Chief Accountant, with the result that I received the compliment of being elected a Fellow of the Royal Statistical Society of England.

It is only with extreme reluctance that I feel compelled to make these statements, and I should not have done so did I not feel obliged in justice to myself to combat the charges of inexperience made by the Engineer-in-Chief in his letter.

I have the honor to be,
Sir,

Your obedient Servant,

FRED. BACK, *General Manager*
Tasmanian Government Railways.

The Hon. the Minister of Lands and Works.