

(No. 110.)



1878.

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TASMANIA.

HOUSE OF ASSEMBLY.

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MAIN LINE RAILWAY:

MR. GREENE'S REPORT.

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Laid upon the Table by the Minister of Lands, and ordered by the House to be printed, December 20, 1878.



*Hobart Town, 19th December, 1878.*

SIR,

REFERRING to your letter of the 1st October last, informing me that I had been appointed by His Excellency the Governor to inspect and report as to the repairs of the Tasmanian Main Line Railway, and to your letter of the 30th October, directing me to proceed with the inspection, I have the honor to inform you that I have examined carefully the permanent way and works of the Line, that I have examined the greater portion of the rolling stock, and I find that there is a very marked improvement in the whole undertaking since my former examinations. I am of opinion, however, that, in order to put the Line in efficient repair and working condition, the Company should be called upon to undertake the following:—

1. To replace immediately 250 tons of damaged rails at various points on the Line.
2. To remove all short pieces of rails under 11 ft. 6 in. in length, excepting those necessary to connect points and crossings with the Main Line.
3. To use the full number of fish-bolts at all rail-joints.
4. To replace the outer rails on the curves which are partially worn by the action of the wheel flanges. It is estimated that 350 tons of rails will be required for this purpose.
5. To complete the double spiking on each sleeper of the outside flange of outer rail on all curves.
6. To double spike on each sleeper the inner flange of the outside rail of all curves of less radii than 10 chains.
7. To repair all points and crossings, and, where renewals are necessary, to use a different form of blade with a view of avoiding the objectionable notch on the stock rail.
8. To provide bolts with cotters and locks to secure the points to the stock rail in lieu of the present insecure method of locking the point box levers.
9. To provide locking Scotch blocks leading on to the Main Line, and to repair those already provided.
10. To examine and re-gauge the road at several points where it has been irregularly laid in, and to drive home all spikes which have been loosened by the action of the traffic.
11. To complete ballasting to the contract width of 8 ft. 6 in., and depth of 18 in. below rail level, and to remove all boulders, stones, and spalls which are less than 10 inches below the bottom of sleepers.
12. To renew decayed sleepers as they are discovered in the road during the ordinary course of repairs.
13. To tighten bolts in all timber bridges and culverts, and to supply sufficient plate-washers where necessary for this purpose.
14. At all bridges and culverts where the rails are spiked to the longitudinal beams, the road to be brought to its proper level by levelling the top of the beams, and providing continuous packing.

where necessary ; all short pieces of packing and wedges to be removed, and where the rails are spiked to transverse sleepers attached to longitudinal beams, no packing should be used ; the sleepers should be adzed to a proper level, so as to seat the rails without wedging or under-pinning.

15. To repair all level crossings and field-gates and their fastenings.
16. To provide guard and check rails at all level crossings, public or private roads, field-gates, &c., and to repair those already provided.
17. To make the fences at all places sufficient to prevent the trespass of cattle, and to repair occasional gaps in existing fences.
18. To provide a distant semaphore signal at each side of the following stations :—O'Brien's Bridge, New Norfolk Road, Brighton, Campania, Jerusalem, Flat Top, Oatlands, Antill Ponds, Ross, Campbell Town, and Evandale.
19. To provide a home semaphore signal at each of the following places :—Tea Tree siding, Jericho, Tunbridge, Corners, Epping Forest, and Snake Banks.
20. To provide a distant signal at Evandale Junction outside the points at the south end of the Junction station.
21. To provide a distant signal at the Launceston terminus, and to put into working order the distant signal at the Hobart terminus.
22. The distant semaphores to be single armed, and to be counter-weighted, so as to fly to "danger" in case of the breakage or derangement of the gear.
23. The home semaphores to be double-armed, and of such a height as to be readily seen by men in charge of trains at a sufficient distance to enable them to stop if necessary outside the points at either end of the station. All semaphores to be fitted with night signals.
24. To provide a distant semaphore at the south end of the Bridgewater viaduct for the protection of down trains approaching the swing bridge.
25. To provide an electric block signal to be worked between the Brighton station and the swing bridge for the protection of up trains.
26. To provide a sufficient semaphore at the swing bridge for the guidance of persons in charge of river craft intending to pass through, and to frame and publish rules for the guidance of all concerned.
27. To provide and maintain sufficient signals at all sidings leading to ballast pits.
28. To repair the copings of all existing platforms, and to furnish all copings and platforms with a ramp at each end not steeper than 1 in 5.
29. To provide and maintain sufficient platform lights on all intermediate stations.
30. To provide a loading gauge at each station so as to limit the height of load to 10 feet above level, and to make provision to prevent overloading in weight, which should not exceed 4 tons per truck.
31. To provide steps or a ramp at each end of all ash-pits so as to allow men to enter and leave them without risk.
32. To provide at each terminus sufficient sidings for the repairs of trucks, so as to prevent the risk to men employed repairing them on the sidings used for ordinary traffic.
33. To cut down a portion of the goods shed at Ross station, to remove a telegraph post at Oatlands station, and a post on the passenger platform at the Launceston terminus, so as to give the necessary clearance required by the Board of Trade.
34. Either to alter the stopping place at Clarendon to the site set apart for a station at 115 miles 10 chains, or to provide a platform or landing for the use of passengers joining or leaving the train at the present stopping place.
35. To renew a log culvert at level crossing north of Epping Forest station, and to repair the small log culverts between Corners and Snake Banks.

I have examined most of the rolling stock, including eight of the locomotive engines; the passenger stock is in fair repair—some of the vehicles require painting, and some of the second class carriages are not high enough above the springs: this, I understand, it is proposed to alter immediately.

Except the three new locomotives Nos. 12, 13, and 14, and one or two which have recently been repaired, the engines are in bad condition, and require immediate overhaul. I noticed one engine with three broken wheels, one wheel broken in three places; this engine is in constant use running the express train.

The wagon stock with some exceptions is also in bad repair, many of the wheels require turning; the new engines are not, in my opinion, suited to the road, they have rigid leading wheel bases, and radial axles to the trailing wheels; they do not adapt themselves to the curvature of the road, and on straight portions the radial axles cause great lateral motion, which is very damaging not only to the engines themselves but also to the permanent way. I am of opinion that the company should be called upon,—

36. To use no engine which is not provided with a leading bogie truck, or flexible wheel base in front.

37. To provide all passenger stock with bogie or other flexible wheel base.

38. To provide automatic continuous brakes in lieu of the present chain brake, which is uncertain in its action, has been generally condemned in England, and depends for its efficiency upon the weakest link of a long chain which is constantly subject to undue strains.

39. To provide a weighted lever brake to each truck which is not furnished with a continuous brake.

40. To attach a buffer with coupling link to the front of each locomotive in lieu of the rigid bar link now used on some of the engines.

41. To put out of use all coupling links less than ( $1\frac{1}{4}$  inch) one and a quarter inch iron.

42. To strengthen the drawbar gear which in most of the wagon stock is at present inefficient.

43. To test by pressure the boilers of the locomotives which have been in use more than two years, or which have run over 60,000 miles.

44. Until an automatic continuous brake is provided, to limit the number of vehicles attached to all trains carrying passengers between Hobart Town and Antill Ponds to eight vehicles exclusive of engine and brake-van.

In making the above recommendations, I have included those matters only which I think are essential, and which I would recommend the Government to undertake forthwith, were the Line in their own hands.

In conclusion, I beg to acknowledge with thanks the facilities which were afforded me for inspection both by the Government and Mr. Grant the General Manager.

I have the honor to be,

Sir,

Your obedient Servant,

*The Hon. N. J. BROWN, Minister of Lands and Works.*

W. H. GREENE.

## MAIN LINE RAILWAY.

(In continuation of Paper No. 110 of the House of Assembly.)

## MR. GRANT'S REPLY TO MR. GREENE'S REPORT.

*Tasmanian Main Line Railway Company, Limited,  
General Manager's Office, Hobart Town, 27th December, 1878.*

SIR,

I HAVE the honor to acknowledge the receipt of your letter of the 21st instant, enclosing copy of the Report of Mr. W. H. Greene on the Main Line Railway,—which I had previously read in the columns of the *Mercury*,—and notice that you desire it should receive my special attention.

You do not ask for any reply, and on a careful perusal of the document I fail to perceive any points therein worth controverting; but it would perhaps better satisfy the public mind were I to briefly show that all the important matters have received the attention of the employés of this Railway Company, in the different branches of the service, which I now do *seriatim*:—

1. As to the 250 tons of damaged rails at various parts of the Line to be replaced.—This quantity of perfect rails is at hand upon the Line ready to replace immediately any that are defective so fast as they require renewal. The changing of rails is a daily operation on one or other parts of the Line.

2. To remove all pieces of rails under 11 feet 6 inches in length, excepting where required.—Very few indeed of such short lengths are on the Line, and—for the sake of appearance only—are taken out whenever any reason for doing it can be found. So long as the joints and sleeper support are perfect I can see no reason for disturbing such rails.

3. To use the full number of bolts at joints.—This, as a matter of course, was done when the rails were laid, and is continued in renewals. In possibly one or two cases when the holes do not coincide, and the tool is not just at hand to rimer them out, a bolt may be temporarily missing; but I do not personally know of one instance, and the Inspectors assure me there are none. Bolts very often work loose and wear out under the traffic, but are replaced so soon as the loss is observed; every ganger having a stock of them always at hand.

4. To replace about 350 tons of the outer rails of curves where partially worn by traffic.—Very much more than this quantity have already been thus replaced, the best quality steel rails being used instead of the iron rails taken up. Enough new steel rails are now on hand ready bent to renew every sharp curve on the Line that has not been done and may require attention; a large quantity additional are now afloat, and supplies will be regularly provided for maintenance. More than the 600 tons of spare rails mentioned by Mr. Greene were available when he commenced his inspection.

5. To complete the double spiking to outside flange of outer rail on all curves.—This was originally done, and continues to be performed in maintenance for all but the very flattest curves, in which cases it would be wholly superfluous.

6. To double spike the inner flange of the outer rail on curves of less than 10 chains radius.—Mr. Greene must have forgotten that on the Main Line Railway—contrary to the usual custom—a perfectly flat broad tire runs on a flat-seated rail, and therefore no conceivable advantage would be derived from double spiking inside the flange.

7. To repair all points and crossings, and renew the blades with a different pattern.—These are most carefully maintained, and the pattern of stock rail is that formerly universally used, and I consider to be alone applicable to so light a rail as 40 lbs. with heavy engines passing over them. We have, however, a large surplus of the heavy steel rails imported for renewing the third rail on the Launceston and Western Railway, which I propose to use for crossings, and the new pattern of points preferred by Mr. Greene.

8. To fasten the blades of points with cotter bolts and padlocks.—This is a modern addition to switches, which we have provided in all that have been made here, and will so continue to do. I regret to state that it is much easier for the engineer to provide such than for the traffic department to get them properly used by the guards. Loose padlocks and keys are most difficult to keep in place, nor can the losing transgressor be readily discovered and punished. This remark also applies to

9. To provide locking Scotch blocks and to repair those in use.—Such have been provided, and are used and kept repaired as well as we are able. There is no trouble or difficulty in *this* practical part.

10. To re-gauge the road and drive home loose spikes.—This is the regular daily occupation of about 140 men, superintended by inspectors and gangers, with other occasional examination. I know of no faults in this respect.

11. To complete ballasting to 8 ft. 6 in. in width, and 18 inches in depth, and to remove all boulders, stones, and spalls less than 10 inches below the bottom of sleepers.—The width and depth of the ballast is almost everywhere *greatly* in excess of the contract requirements; in the very few places where it may have crumbled down, and become narrow, it is now being widened by a special gang of men working with a ballast engine. The instruction to remove all boulders, stones, and spalls I do not understand, for the usually known size of a boulder much exceeds the whole 10 inches, and to remove all stones and spalls would simply take away all the very best of our ballast throughout the whole line, leaving me entirely at a loss to know how to replace it.

12. To renew decayed sleepers as discovered during repairs.—This has to be done upon every railway where timber is used; a large quantity of new sleepers is always kept on hand in each district, and used from whenever desirable.

13. To tighten bolts in all timber bridges and culverts.—This is, of course, part of the daily maintenance,—skilled mechanics being occasionally sent from bridge to bridge to ensure that every part is thoroughly secure; they are also provided with every requisite for the work.

14. To level the road on bridges by removing the whole of the rails; then to trim the top surface of the longitudinal beams to a perfect level, and replace the rails; and generally to provide only continuous packing, instead of short transverse pieces, or under-pinning.—I must state that from my experience this is wholly impracticable. Many years since I tried this longitudinal seating for several large iron bridges, using dry Memel barks upon wrought-iron cross girders, but even this was unsatisfactory; and I have since always adopted cross-seating. The longitudinal sleeping of railways was obliged to be abandoned for this reason; although this too had necessarily to be provided with wedges, or under-pinning. For the bridges on the Main Line—made with the timber of the country, which is almost daily altering its shape and size—to attempt to do what is recommended would seriously weaken the beam, and each bridge would require shipwrights always in attendance. I may positively state that I have examined hundreds of miles of timber bridges, built under the most favourable circumstances with regard to quality and seasoning of timber, but do not remember to have seen rails on longitudinal beams that had not been “skimmed” or packed with short cross pieces to maintain them at true level; nor do I believe it possible to do without them. A similar observation applies to cross-seating where native timber is used; no two pieces shrink equally, or maintain their exact form, rendering packing absolutely necessary.

15. To repair all level crossings and field-gates.—This is of course done as a matter of regular maintenance, and I know of no deficiencies in this respect.

16. To provide guard and check rails for all level crossings, and repair those provided.—Wherever such are not provided it is where unnecessary: crossings were put in at first, consequently the gates have been fastened up, and guard and check rails removed for facility of maintenance,—any repairs are of course attended to as required.

17. To make the fences secure.—This is not a matter that much concerns the railway, since cow-catchers are used on all trains; but the property owners on each side of the line may be trusted to see the fences are sufficient to protect their stock.

18, 19, 20, 21, 22, 23. To provide semaphore signals for stations.—The use of fixed signals is at least but a matter of opinion. The commission of most eminent English engineers, appointed by the Government of India to report upon the system of railways adapted for that country, advised that fixed signals were useless. They are not generally used on the American railroads, or in Canada, Nova Scotia, New Brunswick, or Prince Edward Island, nor, I believe, in New Zealand. In my judgment it would be simply ridiculous to apply them to this line, worked under a strict staff system (according to the regulations, of which a copy is appended), assisted by the electric telegraph, specially maintained for train running. Moreover, *no train* is allowed to pass the facing-points leading into any station, night or day, unless the driver first receives the “all right” signal from the

pointsman, who is required to attend such points, and see that they are in proper order and position for passing over. Since this pointsman is also yard porter and shunter, the *live* signal he gives answers all the purpose of the best interlocking points and signals combined. He is directly responsible for the admission of a train into the station-yard in the first instance, and for its motions afterwards; it would therefore be of little assistance to himself to set a signal which he alone would be concerned in afterwards observing. A distance signal was erected at the Hobart Town terminus, when the extreme absurdity of its use became apparent to the officer on duty, who thereupon discontinued to set it, and I think with good reason.

24, 25. To provide semaphore signals for the Bridgewater Bridge.—This bridge is guarded from the north by three live signals forming both time and distance signals of the most reliable class. From the south the special bridge attendant's signal can be most easily seen for several miles much more readily than any distance signal could be. The gradients of the Line are expressly framed for easily pulling up a train at the foot of the incline; and as there are several crossing gates and a stopping station close to the swing bridge, I cannot therefore think any further security advisable, or that there would be the least utility in an electric block signal.

26. To erect a semaphore on the swing bridge for the guidance of river craft, and to frame and publish rules for the guidance of all concerned.—The road drawbridge, with its high piers and girders, which intervenes between the up stream side and the railway bridge, is surely a sufficient semaphore for vessels coming with the stream. To pass from the down stream side through the bridge, against the current, is a matter necessarily involving so much difficulty, and time, that the position of the railway bridge must infallibly be noticed long previously. It would, however, only involve the expenditure of a few shillings to satisfy this requirement. As regards the framing of rules to control the navigation of this part of the River Derwent, such could only be done under the special authority of an Act of Parliament; and, judging from the indisposition displayed by the Members of the Legislative Council to grant bye-laws to the Company for the protection of themselves and their friends as railway travellers, I fear they would not care to invest me with the necessary powers to make these rules, nor do I think it essential they should do so.

27. To provide signals for ballast-pit sidings.—These are only sidings while (very temporarily) in use, and then are well attended with *live* signals. I have never known semaphores used under such circumstances.

28. To repair platforms, and provide ramps to them.—I know of nothing that really requires to be done in this respect. The earth filling necessarily makes a ramp at the end of each platform, but, as the height is about 15 inches, it cannot be considered a high vertical step from the road.

29. To provide and maintain sufficient platform lights at intermediate stations.—This is purely a matter of traffic arrangements, in which all is done that is considered reasonable, having regard to the night traffic.

30. To provide a loading gauge at each station, and to limit the weight on each truck to 4 tons.—These also are purely traffic arrangements, and such alone. The loading gauges are rarely used on any lines, the Guards acting as a check on the Station Agents in this respect, they being required to refuse to take on any trucks that are in any degree overloaded. Several other checks are also imposed by the Traffic Department upon overloading.

31. To provide steps or a ramp at each end of all ashpits.—A block of timber is the step almost invariably used, and readily obtainable upon a railway. I have never before heard of steps as a requirement, since the men can always procure them if desired.

32. To provide sufficient sidings for the repair of trucks.—I am somewhat surprised that our very ample hospital sidings, both at Launceston and Hobart Town, escaped notice. Trivial repairs must always and necessarily be done to trucks in use on the running sidings, to avoid the great loss of time in shunting out special trucks and taking them to the hospital roads.

33. To cut down the goods shed at Ross Station, and remove a telegraph post at Oatlands and another at Launceston.—These matters are in no degree sources of danger, but I hope shortly to erect a new and larger goods shed at Ross, and will have the telegraph posts attended to.

34. To renew and repair some small log culverts.—My Inspector for the district assures me that all these are in good order. I will have them examined by a carpenter, and renewed where necessary.

As regards rolling stock.—Passing by the mention of trivial routine work to the passenger stock, Mr. Greene states that the engines generally are in bad condition, and require immediate overhaul. The Company's Locomotive Superintendent denies this in the most positive terms, stating that each engine has been recently put in effective condition and is in proper working order.

In proof of this he alleges (what I know to be the fact) that *each* engine in the service now regularly takes a very much greater load than it formerly did, and that, for the first time since the line was open, the whole of the Company's locomotive stock is in presentable condition and available for immediate work. More than this could not be said of any railway in the world, and there are very few that could furnish such a statement. For every necessary repair of any of the engines we have the material and conveniences to do it promptly. As regards the *cracks in the rims* of the wrought-iron wheel, where a very difficult weld is made, they are merely mentioned by Mr. Greene as existing, but are not of even *the slightest consequence*. Were the rims sawn completely through at all such cracks, the wheels would be equally effective and safe. I cannot detect the number of cracks stated to exist.

As to the remark that the wagon stock, with exceptions, is in bad repair, because many of the wheels require turning, I fear that it can never be otherwise. The flanges are necessarily always grinding away, and after a time require turning; for them to be always in the same condition they would require to be never used. Mr. Greene's remarks about the new locomotive engines differ from the opinions of some of the best known and most experienced locomotive engineers of the present day. These engines are of the precise pattern of which hundreds have been supplied to the Indian State Railways, after the highest professional talent had been engaged in securing the best design. They are also used in Queensland and New Zealand. It would appear that the selection of the peculiar type of engine the Company should use could hardly be included under the instructions to ascertain simply the good and efficient state of repair and working condition of the Railway; and I am quite unable to conceive how it is that "on straight portions *the radial axles cause great lateral motion*," since there is nothing in the construction of these radial axles that could possibly produce such an effect; and the statement is a wholesale condemnation of a very large class of excellent engines of the most modern type. The engines objected to have been thoroughly tested on the Line since their arrival, and found to run extremely well; therefore,

36. I see no reason whatever for imposing any special design of engine upon the Company, when in their selection they have been guided by the highest English authorities.

37. Nor for doing the same with the carriages, when those in use answer all purposes of traffic in a very satisfactory manner.

38. To provide automatic continuous brakes in lieu of the present chain brake, which is uncertain in action, has been condemned in England, and depends for its efficiency upon the weakest link of a chain.—Passing by the consideration that this is a peculiarity of chains generally, but does not appear to prevent the use of this most important manufacture, I must reply that this chain brake is alone used—after a vast amount of consideration and experimenting—by the most wealthy and important Railway in the British Empire, and that other large Railway Companies give it the preference. The brakes referred to by Mr. Greene are valuable for passenger trains only, but entirely unsuited to the mixed trains or goods trains of the Main Line Railway. The general efficiency and reliability of the brakes in use on the Main Line Railway has now been satisfactorily proved by nearly five years' experience, and I do not desire to use a better or more convenient invention.

39. To provide a weighted lever brake to each truck not furnished with a continuous brake.—Any such trucks are only used (a few at a time) in front of a train furnished with more than ample continuous brake power, and therefore the side brakes are never used. Still, most of the trucks have them on, and consequently a deficiency of brake power could never arise.

40. To attach a buffer with coupling link to front of locomotives in lieu of draw-bar.—The rigid draw-bar fixed to buffer plank is the almost invariable custom, but we have gradually been making the change noticed by Mr. Greene, and only 4 engines remain unaltered.

41. To put out of use all coupling links less than 1½-inch iron.—There are but one or two of the small links on the Line, and those accidentally so. It is somewhat singular that we have never known one of these crack or fail. The larger ones are subject to cracking, and are then immediately replaced.

42. To strengthen the draw-bar gear, which in most of the wagon stock is insufficient.—I am not aware that this is so in any degree, but we are preparing to put the continuous draw-bar gear on those carriages not provided with it.

43. To test by pressure the boiler of the old locomotives.—This is the usual custom, and those not already tested will be proved when the proper time arrives. The working pressure of the engines first supplied has been reduced.

44. Until an automatic continuous brake is provided to limit the number of vehicles on trains between Hobart Town and Antill Ponds to eight.—I do not think Mr. Greene can have himself conceived such an impracticable, and, in fact, absurd idea; nor can I acknowledge that the recom-



mendation is within the general scope of his instructions, or that he has any such knowledge of working the traffic of railways as would justify his giving this advice.

I am happy to state that our trains average double the length he mentions, and frequently are treble the dimensions; and I wish they were always so.

To put in practice this strange recommendation would fully double the cost of working the trains, and add far more than this proportion to the risk and trouble. It would worse than halve our receipts per train mile, which at present are the lowest of any railway in the world; and this is proposed simply because the strength of the weakest part of a chain is the strength of the whole!

In thus criticising the recommendations of Mr. Greene I have no wish to take exception to them in an unfriendly spirit. Had our positions been reversed, I should probably have made a greater number of observations, all possibly of a different character, and, I do not doubt, with a like practical result.

It is to me personally in the highest degree satisfactory that every portion of the line should have been most carefully examined, in walking over it from end to end, by such an able and practical engineer as Mr. Greene; and that all the bridges and structures, after being tested, have been found strong and efficient. This is in itself a most convincing answer to all former inspections, and will, I trust, assure the public that they may depend upon enjoying the same degree of safety upon the Main Line Railway as upon any other in the world. To fully and entirely carry out every suggestion he has made,—except bogies to carriages and automatic brakes—would not cost the Company one thousand pounds in all at the present time, which, on a property that represents upwards of one million pounds sterling, is a comparatively insignificant sum. At the present time nine new passenger vehicles, having a flexible wheel base of the most modern and approved description, are now approaching this colony; and should they be found to offer advantages over the present stock, such will forthwith be changed.

Other valuable rolling stock, plant, and rails are also afloat, and on arrival I know of nothing further that could be desired for the safe, economical, and satisfactory working of the traffic.

I have the honor to be,  
Sir,

Your most obedient Servant,

C. H. GRANT.

To the Hon. C. O'REILLY, Minister of Lands and Works.

#### TASMANIAN MAIN LINE RAILWAY.

##### REGULATIONS for Working by Train Staff.

1. On and after the 13th March, 1876, all trains running on the Tasmanian Main Line Railway, between stations which are notified as staff stations, will be worked by the staff system, as herein described.

2. The line under the staff system is divided into sections, each section being the line from one staff station and to the next staff station. A staff is made coloured and lettered for each section, and the Station Master in possession of this staff may start trains on the said section by delivery either of the staff, or the staff ticket, as hereinafter described; but the station master will be held solely responsible for the custody and use of the staff and staff tickets, in accordance with these regulations.

3. The staff for the use of station masters at staff stations will be issued by the General Manager; but at any staff station the station master or other officer in charge for the day may start trains upon his written order or staff ticket, within the limits of the staff for the section, provided he be in possession of the staff. The staff ticket must show the direction of the journey, and the time of starting, and be signed and dated by the station master, thus: "Brighton to Campania, 11 A.M., W. Smith, S.M., 13 | 3 | 76."

4. The station master must have his train tickets for the day made out, dated, and signed beforehand, all except the time of starting, which he must fill up legibly, and initial at the last moment, with pen or pencil, so as not to delay any train starting for want of this authority. To prevent mistakes, the papers used by station masters for *up* and *down* trains should be cut of different sizes. Any informality, or neglect in the preparation, custody, or transmission of the staff or staff tickets, to be reported to the General Manager. The train tickets are to be kept in the staff box, which is fastened with an inside spring, and the key to open the box is the train staff, so that a ticket cannot be obtained without the train staff. The colouring and lettering of the special staff and box for each district exactly correspond and are specified hereunder.

5. When in the printed time table no time is shown at a staff station, or if a train is not required to stop by signal, or for traffic purposes, it must pass the station so slowly as to allow the station master to deliver to and receive direct from the driver the staff or staff ticket; and no train, whether special or otherwise, is to run past a staff station without this authority, or without written instructions from the General Manager. In all other cases where trains stop at staff stations, their arrival and departure must proceed in the order following.

6. When all trade arrangements at a staff station are complete, and the train or engine is ready to start, it is the duty of the station master to give the staff or a staff ticket to the guard, who must thereupon, in the presence of the station master, hand the same to the driver as the instruction to start the train. In the case of a light engine without a guard, the station master will hand the staff or staff ticket to the driver.

7. No engine or train must under any circumstances leave a staff station unless the driver, as hereinbefore provided, has received the staff or staff ticket for the section.
8. The only authority to start a train from the staff station is the delivery to the driver of the staff or staff ticket, as directed by Rules 5 and 6 ; but the driver must not start until the usual signal has been given by the guard.
9. Any number of trains required may be started by ticket from the same station and in the same direction, provided only the staff for the section is at the station ; but when a train has been started carrying the staff, no other engine or train can leave in the same direction under any circumstances whatever, until this staff has been returned.
10. On the arrival of a train at a staff station the driver must hand the staff or staff ticket to the guard, who will deliver it to the station master.
11. The station master is the sole person authorised to deliver or receive the staff or staff ticket to or from the guard or driver, as prescribed by these regulations.
12. Neglect to deliver up a staff or staff ticket, the carrying of the same beyond the station at which it should be delivered, or the starting from a staff station without the staff or ticket, will render the person at fault liable to dismissal, although no accident may arise.
13. All tickets received by station masters on the arrival of trains at staff stations are to be marked "cancelled," and filed for one week at the receiving station, after which time, if not required by the General Manager, they are to be destroyed.
14. The last train for the day from a staff station may be started either by a staff or ticket, according to the requirements of the terminal stations of the section, as shown by the time table, or by any special instructions issued by the Manager. For example, if the first train for the day will be an arrival from the station to which the last train is despatched on the previous night, then that last train must carry the staff, so that the station master to whom it is delivered may start next morning's train either with a ticket or a staff, in accordance with these regulations. But if the first train for the day will be a departure in the same direction as the last train of the previous night, then the last train must be started by a staff ticket, so that the staff being detained at the station, can be used to start next morning's train.
15. Any train started at midnight will be held as the last train for the previous day.
16. Each station master at a staff station must pay particular attention to the working of the staff and tickets in accordance with these regulations, and cause as little delay as possible to the traffic on both sides of him. For example, the starting of a train by ticket, when it ought to have been by staff, or *vice versa*, will cause a stoppage of traffic, and will render the offender liable to fine.
17. No train is to carry a disc or extra tail lamp unless it is to be followed by a special train not shown in the time table, when this signal must be used. Station masters, gate-keepers, platelayers, and others in the permanent way must observe the last vehicle in every train, to ascertain if a special is to follow. But where a special train or engine takes the time of a published train, *i.e.*, starts a few minutes before it, then that special must carry a disc.
18. In the event of a train carrying the staff becoming disabled, the staff must be taken to the nearest station where assistance can be obtained or where it can be applied for by means of the staff on the next section. On the line being clear, the staff of the disabled train must be taken without delay to its original destination.
19. If a train is disabled while travelling on a staff ticket, the fireman must go back 800 yards to the rear of the train with a danger signal, while the guard procures assistance from the nearest station, and telegraphs to prevent the despatch of other trains, until the line is clear.
20. Should any accident occur of a nature to block the road for any considerable time, special arrangements must be made for working the trains to and from the point of obstruction on either side. The staff regulations to be carried out on that side where the staff happens to be at the moment of the accident. On the other side the traffic to be conducted by a pilotman. The station masters at the staff stations on each side will receive written instructions as to the arrangements made, and these will continue in force until the line is clear.
21. When more than one engine runs with a train, the engine directly attached and nearest to the train shall carry the staff, or staff ticket.
22. Ballast trains, or engines working for Contractors, or on the repairs of the line are not subject to these regulations.

*Ordinary Train Staff Stations.*

1. Hobart Town	to Brighton	.....	Dark Green.
2. Brighton	,, Campania	.....	,, Yellow.
3. Campania	,, Jerusalem	.....	,, Red.
4. Jerusalem	,, Oatlands	.....	Light Blue.
5. Oatlands	,, Antill Ponds	.....	,, Green.
6. Antill Ponds	,, Ross	.....	Dark Blue.
7. Ross	,, Campbell Town	.....	,, Brown.
8. Campbell Town	,, Corners	.....	Light Brown.
9. Corners	,, Evandale Junction	.....	,, Pink.
10. Evandale Jn.	,, Launceston	.....	,, Yellow.

By Order of the Board,

C. H. GRANT, *General Manager.*

## MAIN LINE RAILWAY.

*(In continuation of Paper No. 110 of the House of Assembly.)**Kyneton, Victoria, 14th January, 1879.*

SIR,

I HAVE the honor to acknowledge, with thanks, the receipt of your letter of the 2nd instant, enclosing a copy of Mr. Grant's reply to my Report of the 19th ultimo.

I must say that I entirely dissent from Mr. Grant's opinions and statements.

I do not agree that broken rails, insecure permanent way fastenings, insufficient brake power, dilapidated condition and unsuitable character of most of the engine and wagon stock, the absence of fixed signals, and of the means of checking the overloading of trains and vehicles, are of little moment, and that broken wheels of engines in constant use are "not of the slightest consequence." On the contrary, I regard all of them as very serious matters.

Mr. Grant is apparently relying upon the inadequacy of the 5th Clause of the Tasmanian Main Line Railway Amendment Act to effect the purpose for which it was evidently intended. Had that Act authorised the Government to withhold the subsidy until the line and its equipment were put into proper repair and working condition, I venture to express my opinion that Mr. Grant's reply to my Report would have been of a totally different character; and that rather than submit such statements and opinions to the review of the Supreme Court—where the actual condition of the whole undertaking must have been laid bare—he would promptly have carried out the very reasonable suggestions which it was my duty to submit to the Government.

I have the honor to be,

Sir,

Your obedient Servant,

W. H. GREENE.

*The Hon. C. O'REILLY, Minister of Lands & Works,  
Hobart Town.*

## MAIN LINE RAILWAY.

(*In continuation of Paper No. 110 of the House of Assembly.*)

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*Tasmanian Main Line Railway Company, Limited,  
General Manager's Office, Hobart Town, 29th January, 1879.*

SIR,

I HAVE the honor to acknowledge the due receipt of your letter of the 28th instant, and to thank you for the copies of Mr. Greene's rejoinder to my reply to his Report on the Main Line Railway.

A perusal of the Report and reply will show that the matters summed up in the 3rd paragraph of Mr. Greene's letter are simply differences of opinion; but I have the advantage of adducing some years' experience of the working of the line, under circumstances of every conceivable difficulty, against the strictures of Mr. Greene, made on purely theoretical considerations.

There were many far more "serious matters" to overcome than those he comments upon,—some of which I have stated were already provided for or were in course of amendment, while others I entirely deny the utility of.

I must in my reply have unwittingly made some observation that irritated Mr. Greene. This I much regret: for I feel sure that, otherwise, he would not have given expression to such an opinion as that I have any contempt for the laws of this Colony, or that I should suppose the Supreme Court could discover more than he observed in a most careful examination of the road, foot by foot, in a period extending over several weeks.

I have the honor to be,  
Sir,

Your most obedient Servant,

C. H. GRANT.

*The Hon. C. O'REILLY, M.H.A.,  
Minister of Lands and Works.*

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