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NEW ZEALAND.

ADDINGTON RAILWAY WORKSHOPS

(MINUTES OF EVIDENCE GIVEN BEFORE THE BOARD OF INQUIRY ON THE).

Presented to both Houses of the General Assembly by Command of His Excellency.

THURSDAY, 11TH MARCH, 1909.

Mr. T. RONAYNE, General Manager of New Zealand Railways, examined. (No. 1.)

Witness: In connection with this matter I think it is only right and proper, and in justice to myself, the Department, and the men—the men especially—that I should make a statement in order that the full facts of the case may be laid before all concerned. With your permission I will make that statement now. My informant called at my office and made strong representations as to the slow and leisurely manner in which the boilermakers were doing their work. In his opinion the shops required shaking up, and he urged me to send a strong letter to Addington. The work in the smiths' shop was not so severely criticized, but he considered that there was a certain amount of slowness there. My informant is a man fully competent to judge as to the amount of work a boilermaker should perform, and as to the celerity in movements necessary to insure a fair day's work. The information was of such a specific nature that, in the interests of the Dominion and also of the men, I felt it my duty to place the matter before the Chief Mechanical Engineer, who has charge of the Workshops. The information, coming as it did from a man who previously had on many occasions spoken in the highest terms of the quality and quantity of the work turned out in the boiler-shops, a man whom I considered was actuated by motives conducive to the proper working of the shops, a man who had always, prior to the interview referred to, really acted as the boilermakers' champion in any cases where they thought that they were not being fairly treated, caused me much indignation, and while in that frame of mind my letter was written. In due course I received reports from the Locomotive Engineer, the Workshops Manager, and all of the foremen, although in reality there were only two shops—the boilermakers' and the smiths' shops—implicated, couched in more or less indignant language, denying that there was any inattention to their duties on the part of the men. Knowing the officers in question to be zealous and intelligent in the discharge of their several duties, and having every confidence in them, I could only come to one conclusion, and that was that the information I had received could not have been correct. Prior to receiving the information, I may say that I had the utmost confidence in the men in the boiler and smiths' shops, and I was amazed to learn that they had so fallen off in their work—not in the quality, as I know that Addington can hold its own with any locomotive-shops in the world, but in the lack of energy they were said to be putting into their work. From what I have since learned my informant considers he has been misunderstood, and that he made no strictures regarding the smiths' shop—in fact, did not mention the smiths' shop. So far as this is concerned my memory is quite clear on the matter, and there was no misunderstanding on my side. Contrary to the rules and regulations in force on the New Zealand Railways, my letter was handed to the Press by some unscrupulous person, when a further investigation was deemed necessary, and to avoid any suspicion, and in fairness to the officers and men, I recommended that a public inquiry should be held by experts having no connection with the Department. In doing so I felt convinced that the honour of the officers and men on whom my informant had cast such serious reflections would be fully vindicated. My reference to Price Bros. and the Petone shops was intended to act as an incentive to the Chief Mechanical Engineer to see if there could be a greater output of work.

1. *The Chairman.*] Will you put in as evidence the letter which you wrote to the Chief Mechanical Engineer?—Yes. The first letter had no right to get out. I considered the matter, and thought it was manifestly unfair to prejudge the case, and gave immediate instructions to have it withdrawn. It is not my style to prejudge a case.

2. Your contention is that the letter was intended to act as a departmental whip?—Yes, it was not intended for the staff but for the Chief Mechanical Engineer to deal with through the officers in the ordinary manner. As it is, it has become public property, and grave suspicion has been created in the minds of the public as to whether Addington Workshops are properly conducted.

3. The matter of the letter, you hold, was entirely based upon the information which you received on this occasion ?—Certainly I should never have dreamed of sending such a letter if I had not got that information.

4. It was not based on your own observation ?—Certainly not. Whenever I have gone through Addington I have thought the work was going on in a very satisfactory manner. Some years ago I had the honour of presiding over that shop, and the manner in which the men discharged their duty then was eminently satisfactory.

5. *Mr. Roberts.*] You think now that the work is carried on in a proper manner in the shops. You are not of the same opinion as when you wrote that letter ?—That was my opinion when my mind was very much excited through receiving information from a man whom I considered fully competent to judge as to the manner in which the work was conducted on that particular occasion. I have full reliance on the reports I have received from Mr. Henderson, the foreman of the boiler-shop, and also Mr. Cole, the foreman of the blacksmiths' shop, in addition to which, of course, there is the Workshops Manager's report, which is very explicit. If you desire I can let you have copies of these reports.

6. I think that in your letter you stated that the work was not carried out as expeditiously as at Petone or Hillside. Do you still hold that opinion ?—I came to that conclusion on the strength of the information received. I assumed to a certain extent that, if this so-called Government stroke was prevalent at Addington, the work of the other shops in the Dominion must be more cheaply put through. But I would not lay too much stress on the reference made on that occasion; it was for the Chief Mechanical Engineer—a hint to him to look into the cost of production of work by the various workshops—that is, Petone, Hillside, and Addington—for similar work.

7. Has any such comparative statement been received ?—It has been done from time to time, but has not been done recently. Work varies very greatly, and it is not an easy matter to make comparisons. We largely specialise in our shops—Addington will do one class, Hillside another—and it is very difficult to make a comparison unless you make a comparison of the cost of like material produced by an outside firm.

8. *The Chairman.*] You mentioned the cost of the engines built by Price Bros. and those at Addington. Will you furnish the Board with a detailed statement of the cost of the A compound engines built by Price Bros. and at Addington, and also furnish the price of the American engines placed on the lines in New Zealand ?—Yes. With your permission I would like to say that, when making my comparison on the matter of cost, I did not take into consideration whether Price Bros. were losing money on their contract or not, and, of course, that would place a different complexion on the matter I have reason to believe that by an award of the Arbitration Court, which was adverse to Price Bros. and does not affect the Railway Department, Price Bros. stand to lose a considerable sum of money on their contract. I have no doubt that the Chief Mechanical Engineer has the permission of Price Bros. to give figures, and I think they will result in showing that the price of the engines produced at Addington will compare favourably with those produced by Messrs. Price Bros. It is only fair to the men that these facts should be elicited.

9. *Mr. Hampton.*] You admit that you sent this letter out which has been published in the papers throughout the Dominion, and which is the cause of this inquiry being held ?—Yes, certainly.

10. Are the statements contained therein exactly as communicated to you by the so-called expert engineer ?—Not exactly.

11. In what way do they differ ?—I conveyed the sense of the information imparted to me.

12. Practically they are the same as given to you ?—Yes, and in connection with that it is not a question of memory, because my informant came into my office, and immediately he went my notes and that letter were written. I had not finished writing the letter when Mr. Beattie came in. I handed them to Mr. Beattie, and said, "Mr. Beattie, this is bad reading"; and he said it was. I said, "You had better have it typed, and have an inspection and report as to the correctness or otherwise of the charges." They were charges made against the administration of the shop. Mr. Beattie did that in due course. The letter was dealt with in a rather informal manner, because it is usual for such letters to go through the Chief Clerk of the office. I thought about the matter, and concluded that it was wrong to have in that paragraph commencing "It is futile." I tried to get the letter, and assumed that it had gone through my office. Mr. Beattie, however, had it with my authority, and for the time being we could not find it. That was how the first version came out. The revised version put it quite in order.

13. Then we may conclude that the statements made in your letter are practically identical with those made to you by the so-called expert ?—That is quite correct.

14. Can you tell us how long the interview with this so-called expert lasted ?—It might have been half an hour.

15. Can you give nothing nearer than that ?—No. We were talking about other matters as well. I should say at the very outside the interview would not exceed half an hour; I do not think it would be half an hour.

16. Are you satisfied that this gentleman who had the interview with you had all the qualifications of an expert engineer ?—He had all the qualifications to judge as to the proper working of the boiler-shop.

17. That is not what I am asking you. Are you perfectly satisfied he had all the qualifications of an expert engineer ?—He had the qualifications of an expert boilermakers' engineer.

18. He was a boilermaker—is that what you mean ?—He had the qualifications of a boilermakers' engineer.

19. What do you call a boilermakers' engineer ?—You have men who call themselves engineers, and who are not in the ordinary sense mechanical engineers.

20. As head of a large Railway Department, in your judgment was this man you had the interview with qualified to rank as an expert engineer ?—So far as boilers are concerned. I would not call him an all-round mechanical engineer. Of course, boilermaking is a branch of engineering. In that respect he is an expert engineer.

21. You refuse to give us the name of the gentleman who had this interview with you ?—As a matter of honour I do not feel disposed to do so, because I have not his permission. You might just as well ask the newspaper-proprietor, who got my letter to the Chief Mechanical Engineer surreptitiously, for information as to who gave it him.

22. Have you approached the person for permission to use his name ?—No.

23. Do you take the responsibility of those statements yourself—that is, those statements contained in your letter which have been the cause of this inquiry—or do you propose to prove them by calling this gentleman to substantiate their reliability ?—I do not propose to call him. I have no power to call him.

24. Was there any intention on your part that these statements should be made public ?—Certainly not.

25. Then, if they had not been made public, how would the men have got on ? They would have been accused of being loiterers and loafers, and have had no opportunity of refuting the statements ?—Very likely the men would know nothing about it.

26. Do you consider it a fair thing to send letters like that behind the backs of men without their knowing anything about it ?—It is the usual way. When complaints of a similar nature are received they are referred to the head of the particular branch concerned to get a report upon, and if the men are exonerated—as on this occasion was the case—that is the end of it. The men's minds are not uneasy about these charges; it is the foremen who are responsible. The foreman is the man who is held responsible by the Workshops Manager, by myself, and by the Chief Locomotive Engineer.

27. You have no personal knowledge of men practising what you term "Government stroke" ?—No. They would very soon know of it if I did.

28. Then it is merely a statement made to you by this casual visitor to the shop ?—It is the opinion of my informant. They are not my words, my view, or my opinion. They are simply the views of my informant, passed on to the Engineer to make inquiries as to the correctness of those views.

29. Do you not think that, before using it in the way you did, you should have asked the officers at Addington to report, and then have heard their side of the case and have come to a judgment ?—The first letter was a confidential one to the Chief Mechanical Engineer.

30. From your instructions to the Chief Mechanical Engineer you said, "You will please take such action as will bring this discreditable state of affairs to an end." You appear to have accepted your informant's statement as correct ?—For the time being I did. I have had reason to alter it since.

31. You now unreservedly withdraw that letter ?—I do not say that, but as far as the men are concerned I am bound to accept the report of my officers, which exonerates them. I am satisfied there is no reasonable ground for complaint.

32. You are satisfied now that such a state of things does not exist ?—That is so.

HON. J. E. JENKINSON, M.L.C., examined. (No. 2.)

Witness: I desire to thank the Board of Inquiry for this opportunity of saying a few words, and I want to confine my remarks in the first instance to a personal matter. Before that I want to say one or two things in reference to Mr. Ronayne. I have heard his evidence. From the time I first approached Mr. Ronayne on matters connected with the railways and the railway service, he has been eminently fair and reasonable, and he has given me such reasonable concessions for the benefit of the railwaymen that I cannot help thinking, if the men themselves had the knowledge that Mr. Ronayne had on the questions brought before him by myself and others, they would hold a higher opinion of him than I have heard expressed lately by them. Mr. Ronayne said that he based his memo. on an interview he had with an expert engineer, and that that expert engineer's interview was confidential, and he could not therefore give his name. Well, sir, reading the memo., I am perfectly convinced that a part of it—I cannot say the whole—I do not know what was in Mr. Ronayne's mind—but a part certainly emanated from what I put before him. I take credit for a few of the particular words in that memo., and that is why I think the impression has got abroad that I had more to do with it than I really had. The words, "Five minutes per rivet for the new riveter," are my words. I do not know that those are the words originally said. Mr. Ronayne's account of the interview is not quite correct, so far as I remember. I have a fairly good memory, and particularly regarding this interview, because it has not been allowed to go far out of my mind since the appearance of the memorandum in the newspaper. As a matter of fact, I went to Mr. Ronayne on that morning in reference to an allowance granted of 6d. per day by Parliament to skilled workmen. I asked why that had not been paid, and the matter of the Addington Workshops came up. I might say that for the last few years I have been met, when I approached the Railway Department in connection with Addington, with the answer, "Things are not satisfactory at Addington. The work is costing more at Addington than elsewhere. The men are not turning out the work there in such a way as to be economical to the Dominion." That is the reply I have been met with when I have approached the Department. Knowing that this feeling existed in the minds of the Department, I thought it was time we should strive to get at why the work was not done as economically at Addington as elsewhere. I knew from my own experience that the work was turned out better at Addington than elsewhere, and it was natural, that being the case, that it would cost more. Several times I got this answer from Mr. Ronayne and other heads of Departments. I said that I knew perfectly well that the work was not being turned out economically. Mr. Ronayne said, "Yes?" I said, "Yes, because of the system." I said there was extravagance shown

in the placing of machinery in the shop and in the question of supplying appliances to work that machinery which tended to put the cost of work at Addington above what it should be. A case in point is the new riveting-machine: it is a fine machine, but it is placed in position without appliances, and with the accumulator it is quite impossible for that machine to pay interest on its cost and do such work as will compensate the Department for incurring the extravagance. The gantry is an entire waste of money. I was told that that structure was only there temporarily, and would have to be pulled down, and I said, "That goes to prove that Addington must be hampered by this useless expense." The words "Government stroke" or loafer never occurred in the conversation. Neither Mr. Ronayne nor myself are apt to use such expressions in dealing with Government men; we have their interests too much at heart for that sort of thing. I have said I was calling attention to the cost of the work because of out-of-date appliances, and I quoted the date of the different appliances that were put up to work (those of the hydraulic riveter). I said five minutes per rivet was about as much as could be expected. I think I said that would be rather over than under the mark. I think that if the riveter turned out ninety to a hundred per day on an average it is as much as it could do. I told the workmen at the time that the riveter was not doing the work as it should be doing it, and I was assured then that it was the accumulator which was at fault. It was the one they had for the prior machine, and they had not time to get a new one in. I am thirsting for nobody's blood; I only want to say that the conditions at Addington are such as will not allow the foreman to turn out work in as cheap a manner and as good a manner as hitherto. "He said he was astounded at the slow method and leisurely work of the men generally." I was astounded at the slow method by which work was turned out, because, as I say, the appliances were not such as would allow the men to do better work. I do not think the word "loafing" ever entered our minds. Certainly it did not enter into the conversation; and, if Mr. Ronayne implies that I suggested that loafing was practised, I can only say my whole mind must have altered very much in the last few months. I have the interests of Addington too much at heart for that. That loafing does exist I suppose goes without saying, as it exists in most shops. But to say that loafing is carried out systematically by half or even the majority of the men in the Workshops, I do not think entered into Mr. Ronayne's head, and certainly it did not enter mine. I was very pleased to hear Mr. Ronayne admit that heretofore I have been an ardent supporter of the excellences and capacities of the foreman boilermaker, Mr. Henderson. I say without hesitation he is the best foreman we have had in the Railway Workshops—thoroughly conscientious and knows how to get work out of men, and I am satisfied that the Board of Inquiry will get evidence from men who have been in the shops and are now out of them to prove that Mr. Henderson has all those qualities.

I certainly said that discontent was rife through the Addington Workshops; I did not say there was loafing in the blacksmiths' shop. I certainly said in regard to the boiler-shop, in reference to Mr. Henderson, that I thought the department was too large for one man's supervision. It appeared to me that Mr. Henderson's time was taken up in the office doing clerical work. He has a large department, extending all over the shop, and he had to be out of the boiler-shop a great deal of his time. I have said before that there should be more than one leading hand at Addington. One man is not able to carry out the duties. My suggestion as to increasing the number of leading hands has not been carried out. I cannot grumble about that. I am not running the shops. The Chief Mechanical Engineer probably has reasons for not complying with my request. But I think it would be conducive to the profitable working of the Department if there was more supervision in the shops. I know there was discontent amongst several of the men in the blacksmiths' shop as to the terms they were receiving in regard to their consideration under the last Classification Act passed by Parliament increasing the rates of pay. I think I also told Mr. Ronayne, in connection with this, that to my mind that was one of the chief causes of the discontent—that the men expected that the spirit in which the last Classification Act was passed by Parliament would be adhered to, but to their annoyance they found that the Act was read too strictly and their rise of 6d. per day was withheld. I want to make it clear to the Commission that it was entirely the matter of discontent that I called attention to. I said that the discontent at Addington was far greater now than ever it had been to my knowledge in the shops, and that such discontent probably would cause the work to be turned out in a less economical manner. The reasons I have suggested to the Minister are the conditions of employment and the present classification. I trust the Commission will go into the question of classification, because it is the cause of great discontent. It is used against the men, and I do not think it is very often used in favour of them. I have been against it all the time, but I know it very often hampers the Department in making such promotion as it thinks should be carried out in the interests of the railways.

Every inducement should be given to the men to give their best efforts, and that was not done when there were evidences of a lack of economy on the part of the administration. In my opinion the intelligence of the workers is such that they will recognise at once when there is not an exercise of economy in the higher branch of the service, and when that is so they become careless and let the work slip. In my opinion, at Addington there is not that evidence of economy. On the other hand, there is evidence of extravagance in the way of putting machines into the shop that could very well be done without, while the every-day working-machines which are to be found in almost all the other shops in New Zealand are kept out of the Railway shop. I know that in one Railway shop in the Dominion there is a set of rollers that I should say are fifty years old, and which are worked by hand—that is, in one of our shops. The method of doing work in that way will appeal to the Commission. I know, at Addington, that machines have been put in the shop that have done a remarkably small amount of work, whilst machines that are continued in use are machines that were there before my time, and before the time of the Chairman of the Commission. I would not say that they would find a place in any foundry or workshop where the work is supposed to be carried out under economical conditions.

"There appeared to be an utter disregard of the foremen's presence in any of the shops, the men being allowed to talk, loaf, and do a very indifferent day's work." I think that will follow. The foremen had responsibilities cast upon them of conducting the work under businesslike methods, but they had no power. Their power is robbed to a great extent, partly by the classification and partly by the men being assured of a constant job by the Superannuation Act, and also by the existence of the Railway Appeal Board. I know from hearsay, from foremen and from men, that men have spoken to their superior officers in a manner that would not be tolerated in outside or private employment. I do not want this for one moment to apply to the boiler-shop. I do not think it ever existed there. If a man attempted to speak to Mr. Henderson in such a way as I have heard men have spoken to officers, Mr. Henderson would at once report him, and steps would be taken. I do not think it will be found that the requisitions sent forward to the Department by the administrative heads have been given effect to. I recollect asking a manager why a certain machine had been brought into his shop, and he said he did not know. They did not know that this machine was coming until it was put in. That does not apply to Addington particularly. Machines are brought into shops irrespective of what is recommended by the foreman and perhaps the Manager. They have been put in, and such machines are of no use very often. I have also asked that the shop-managers should be able to engage and dismiss men. That is not a matter for me to deal with; but, to my mind, if the foreman of a shop is responsible for turning out the work in an economical and workmanlike way, he should have power to say what workmen he shall have and what workmen he shall dismiss. With regard to what I have said respecting the Classification Acts passed by Parliament, I know the spirit in which those Acts of Parliament were passed, and I know that they were passed very much in the interests of the men. I know that, when the last Classification Act was passed, one of the clauses which is giving discontent was passed in the spirit that both Mr. Ronayne and myself and the foreman who interviewed Mr. Ronayne at the time agreed to; but I know that the Act is read in quite a different manner to that, and is not read in the spirit in which Parliament passed it.

As regards the cost of work at Addington compared with elsewhere in the Dominion, of course I cannot speak; but, as I said in opening my remarks, I have been met with that charge from the Railway Department when a matter regarding Addington has cropped up. I can only say to my knowledge from hearsay that in the carpenters' shop work is done in Addington in a much better and stronger way than it is in other Railway shops in the Dominion. That, I think, the Commission will find out if they get the men to speak. In the construction of carriages, in putting the ends of the carriage together, panelling—I think it is called—is carried out at Addington, whilst in other shops that is not done, but pieces of wood are nailed on. That goes to increase the cost of the construction at Addington.

My only object in coming forward is to show that I have the interests of the Railway service at heart; but I have the interests of the Dominion still more at heart, and I want to see the work of this Dominion done in a workmanlike and good manner; and, if this Commission goes to work on the lines on which they have started, the result of their labours will be that we shall have work turned out of the Railway shops that will compare favourably with shops anywhere, and the principle of State control in this matter will be recognised as the proper method of turning out State work.

1. *The Chairman.*] Do you consider that the foremen, especially in the boiler-shops, have too much clerical work to do?—I do.

2. You think the clerical work should be reduced, or the foremen be afforded more assistance?—Yes. I say now, in order to put Mr. Henderson right in case he should be tackled with this, that it is not on his words at all I am going. I know what hours he has in the office, and I know that such work would not be put on any foreman in a private shop outside.

3. You are aware that discontent exists amongst the men in the shops, and that this results in the work being turned out in a less economical manner than otherwise would be the case?—Yes; there are other causes, too, of course.

4. You think the work is not carried out as economically as it might be?—That is so.

5. You mention extravagance in putting in new machinery in the shop when really some of the older machines should be replaced?—Yes.

6. Can you give instances?—Yes, I can; but I would much rather the Commission should find out for themselves. I should say that the last occasion on which I had this brought under my notice was at Petone; there is a set of rollers at Petone which must be fifty years old. They are worked by hand, and take two hours and a half to roll a small cylinder. Within the last few weeks a machine was put in at Addington which must have cost £250, and is only worked one day in three weeks.

7. What machine do you allude to at Addington?—I think it is a milling-machine.

8. You mention that the foremen and managers have no power of control over the men—they are unable to engage men or dismiss them?—They have not that power. I have held all along that they should have that power.

9. You mention that the men speak to the officers in a manner which would not be tolerated in outside shops: will you give us an instance?—I prefer not.

10. You also mention that the foremen and managers are not consulted with respect to the new machines which are placed in the shops?—I have been assured by the foremen that that is so.

11. Will you give instances?—I do not think it is wise to give instances. They may be so rare that the Department may be able to trace the source of information. I got it in confidence, and, such being the case, I do not think it is wise to give it away.

12. *Mr. Niven.*] You told us you never used the words "Government stroke"?—Yes.

13. Can you tell us what the words "Government stroke" mean? Is it a quick stroke or a slow stroke?—I assume it was intended to convey the meaning that the men took things fairly easy.

14. The usual meaning is "slow stroke"?—Yes, I should say so.

15. *Mr. Roberts.*] In what way is the accumulator in the boiler-shop defective?—As far as I remember, the present accumulator was in position with the old machine; therefore, if the new machine takes more water, it is not sufficient to keep the present machine going at anything like its fair pace. I do not say that that was the entire cause of the slowness of the work. The gantry has as much to do with it as anything.

16. What is the defect in the gantry?—It is out of date, and the keeping of the boiler in a proper position for putting the rivets in must be deterred very much by the gantry in use.

17. How is it operated?—By the old-fashioned chain.

18. You have referred to the subject of working with the hydraulic riveter: what speed do you consider the hydraulic should accomplish?—Very much quicker than an average of one rivet per five minutes, anyway.

19. You do not commit yourself to any specific number?—No. In some parts of a boiler it is necessary that time should be taken for the rivets to cool. On a longitudinal seam difficulty might arise by putting the rivet in too quickly. I think, however, that I was right in saying that the work was done too slowly.

20. How did you come to know that there was a great deal of discontent in regard to the Classification Act?—By interviews with the men. Any member of Parliament will tell you that that is so.

21. They have complained to members of Parliament?—Yes.

22. You have used the term "spirit of the Act": what do you mean by that?—Under the last Classification Amendment Act certain workmen who were engaged in a particular class of work were entitled to 6d. a day allowance in addition to the ordinary pay. The spirit in which that section was passed was that the skilled workmen, who were allowed to be competent by their superior officers to do their work, were entitled to 6d. a day allowance. I have, however, found that the Act was read in such a way that these skilled workmen were paid the extra 6d. a day only for the actual time at which they were engaged on the work of laying-off. I hold that that 6d. a day was supposed to be given to these men because they were supposed to be competent to undertake that work when it came along. The other day I noticed that the Minister agreed that 6d. a day should be paid to the enginemen.

23. I think you stated that you learned from the Department that work at Addington costs more than in any other shop?—For the last twelve months or two years I have been met with such an answer.

24. Did you apply for that opinion?—No; I applied for concessions, and that was the answer I was met with.

25. Who made the answer to you that the work cost more at Addington than at other shops?—I cannot say that. Those are confidential matters.

26. I presume it would be some one in authority?—Yes. It is usual to go to some one in authority.

27. *Mr. Beattie.*] Do you think it is just to the Addington men to bring out the statements of departmental officers to the effect that the work of the Addington men costs more than that of the men in other shops, and yet refuse to give the names of the officers who made those statements?—I will give the names if I am assured that those who gave me the information would allow me to disclose their names.

28. Do you think it is just to make the statement and withhold names?—Yes. I have already said that I got this information in confidence from heads of the Department.

29. Do you recollect an interview you had with me about a year ago?—I may if you mention the particular circumstances.

30. You came to see me about a hand riveting-machine for which you were agent?—Yes; but I do not know that that should be brought up here: that was a matter of private business.

31. Do you recollect that at that interview you made very complimentary references to Mr. Henderson's work and methods?—I do not know that I made complimentary references. I think you will admit that on every occasion that Mr. Henderson's name has come up I spoke of him with unqualified praise.

32. In these interviews did you ever make any suggestion to me as to the necessity for an additional leading hand?—Yes, I recommended to you once that Mr. Hislop, Mr. Earwaker, and I think Mr. Ross should be appointed leading hands.

33. How long ago was that?—I should say two or three years ago. You may, of course, retort that Mr. Hislop went away and that Mr. Ross left the service immediately afterwards, and that Mr. Earwaker was made a leading hand.

34. Do you recollect how many years it is since Mr. Ross left the service?—Six or seven years ago.

35. Then your suggestion was made six or seven years ago?—The first suggestion.

36. As a result of that suggestion you said that Mr. Earwaker was appointed a leading hand?—I did not say it was really on my suggestion.

37. Mr. Earwaker was appointed a leading hand?—Yes.

38. Have you in any of these interviews with me suggested a second leading hand?—Yes.

39. When did you do that?—Times without number.

40. How many interviews did you have with me, do you think?—I cannot answer that question. We met pretty often. I do not pretend to remember how many interviews I have had with you, I have been with you so often.

41. Do you not know that questions regarding the staff are decided by the General Manager?—I know that the General Manager puts his name sometimes to letters which he has not carefully read. I saw a letter last week sent by the General Manager, and it was entirely in conflict with what the General Manager had told me just a little previously. I know that appointments go through the General Manager and through the Minister. No appointments can be made in any other way.

42. You have mentioned about the accumulator-pressure, and so on ?—I never mentioned anything about the pressure.

43. Do you know from your own observation how many accumulators there are in the Addington Workshops ?—No. They are not ample, that is all I know, from the remarks of the men working them and from my own observation.

44. What is the location of the new riveting-machine—is it anywhere near the old one ?—I should say it was somewhere about where the old one was.

45. Has the hydraulic pressure any further to go to the new machine than it did to the old one ?—I cannot tell you.

46. Do you know at what pressure the accumulators are worked ?—No. I do not claim to be an expert engineer in these matters. I am a boilermaker entirely, and as such have not taken the extreme interest in this that you appear to think I have done.

47. You have mentioned the fact that at Addington the carpenters' shop does work of a more substantial character than other shops ?—As far as my knowledge goes.

48. Is that from observation or from hearsay ?—I said my attention was called to the fact, and the work was pointed out to me.

49. Is the Commission to understand that you examined this work yourself ?—Not closely. As a matter of fact, I am not sure whether the work was panelling or tenoning.

50. This is somebody else's opinion, not yours ?—Yes.

51. Presumably you do not know that all the new carriage-work is done to standard drawings ?—I know it is supposed to be.

52. Do you know that in these standard drawings it is provided in detail for panelling, tenoning, and rabbeting ?—I should say that it would be.

53. But you do not know of your own knowledge ?—No. I have not gone into the blue prints as carefully as that.

54. You have mentioned that you were on particularly friendly terms with Mr. Henderson, the foreman boilermaker: do those terms still continue ?—Yes, I think so. I have heard here that on this point I have had an extreme divergence of opinion with Mr. Henderson, and that I have taken this method of getting back on him. I give that an unqualified denial. My relations with Mr. Henderson now are of the most friendly nature, and have been for the last thirty years. There is no man in the Railway service who for quality and capacity is more deserving of recognition from the Railway Department. I do not say he has not got recognition. There is not the slightest truth in the statement that there has been any scene, or any quarrel, or any words between Mr. Henderson and myself. I have not spoken to Mr. Henderson since Christmas or perhaps November.

55. Can you state the dates when you visited Addington Workshops within the last six months ?—No, I cannot tell you the dates.

56. Does one date happen to be during Carnival Week, when the shops were shut ?—Yes.

57. Then nothing would be working in the boiler-shop ?—I could not say. I should say there was.

58. Was the machinery going ?—I do not think so.

59. The riveting-machine would not be doing work, I presume ?—It may have been; I could not say. I do not remember the exact day I was in the works. It was one of the days in Carnival Week.

60. In your opinion work is done in Addington Workshops in a more substantial manner than elsewhere ?—That is my opinion, and it always has been. I have expressed the opinion to you that I thought too good work was being turned out.

61. Does that apply to the boiler-shop ?—No; I do not think too good can be put on a boiler that has to stand 250 lb. pressure.

62. Your remarks as to too good work being put in at Addington do not apply to the boilers ?—I did not say that at all. I say that, taking it generally, the work is too good.

63. I am asking about the boilers. You said it could not be too good ?—I said that on the boilers of the X engines too good work could not be put in. I would not say that all the boiler-work is done too well at Addington. Some can be done well and more economically.

64. You are not in a position to say what machine it was at Addington which was new and practically unused ?—I called the attention of the Commission to an old machine which was at Petone, and I mentioned a planing-machine which has been at Addington for some years which has not earned its oil.

65. Where is that machine at Addington located ?—Inside the door of the fitting-shop. I should say it was got from Mr. Anderson if I remember its history aright.

66. It is a planing-machine of considerable age ?—It has been there quite a long time, to my own knowledge.

67. Your powers of observation in regard to the work are considerable: have you noticed that that particularly large planing-machine did particularly large work at any time ?—No.

68. Is it within your knowledge that there is a certain class of work done on that machine that could not be done on any other machine in the shop ?—No, it is not within my knowledge.

69. Then your statement was made without full knowledge of the capacity and requirements of the machine ?—I do not claim to make the statements I have made on full knowledge.

70. Your statement about this machine is made without knowledge of the class of work that is done on it ?—Yes.

71. You also made a further statement, so I understood, that there were no pneumatic hoists at Addington ?—Yes, as far as my knowledge goes.

72. Does the particular question of the height of the riveting-machine appeal to you as being awkward or convenient ?—I do not wish to express an opinion.

73. *Mr. Hampton.*] You have already admitted that you visited Addington Workshops early in November ?—Some time in November.

74. What was the object of your visit on that occasion ?—Friendliness ; chats with the men, and general interest.

75. Did you go there to chat with the men and keep them from their work ?—No.

76. The object of your visit was chats with the men ?—Yes; I may say I was there during the dinner-hour.

77. You were not there only during dinner-hour ?—No, I was there after 2.

78. What for ?—General interest.

79. Are you the expert referred to by Mr. Ronayne in his communication to the Chief Mechanical Engineer ?—I do not know.

80. Have you ever had any interviews with Mr. Ronayne ?—Quite a number.

81. Within the last few months ?—Yes.

82. When was the last one ?—Probably a fortnight ago.

83. Do you think you are the individual whom he referred to as the " expert engineer " ?—He refers to some of my statements in that communication ; I know he uses some of my words.

84. Are there any statements in Mr. Ronayne's letters which you have made to him ?—Yes.

85. Which are they ?—The reference to " five minutes per rivet."

86. You told Mr. Ronayne that you saw the boilermakers taking five minutes per rivet ?—Not in that way.

87. In what way ?—Speaking of the appliances and the want of power from want of water in the accumulator, and the excessive expense that had been put on, I expressed the opinion that I thought the result of five minutes per rivet was not sufficient. I thought that would not bear out the motive in putting such an expensive machine into the shop and endowing it with such up-to-date appliances.

88. You blame the machine ?—No, the machine is a remarkably good one.

89. Do you blame the men ?—No.

90. You thought the men took too much time to put the rivets in ?—Yes.

91. And you told Mr. Ronayne so ?—Yes.

92. And you went to Addington on a friendly visit ?—Yes.

93. After going there on a friendly visit, and chatting with the men, you go to Mr. Ronayne and tell him that the men are idling their time and taking too long to put in the rivets ?—Because of the appliances.

94. Is your idea of a friendly visit this : that you go and watch your old shopmates working, and then go and have a communication with the General Manager, saying that they are taking too long over their work ?—I do not think you are putting it in a fair way.

95. What other position can you put it in ?—I have my own opinion about the present system of carrying on the shops, and it is only by going to the shops and keeping my eyes open that I am able to get impressions in regard to the system.

96. The men do not take too long to put the rivets in ?—The rivets are put in by the men with the appliances at their hand. The rivets are put in too slowly ; therefore the men are taking too long to put the rivets in. But it is not the men's fault ; I say now that the appliances to the machinery constitute such drawbacks and obstacles that they compel the men to take too long with their work.

97. You throw the whole blame on the appliances ?—Certainly.

98. The men are in no way to blame ?—Not at all.

99. You admit making that statement about five minutes per rivet ?—Yes.

100. Are you an expert engineer ?—I cannot say.

101. How long have you worked at boilermaking ?—Twenty-five or thirty years—sufficient to enable me to know that work is done under good or bad conditions.

102. By trade you are a boilermaker ?—Yes.

103. You are not an expert engineer ?—No.

104. You make no claim to be such ?—No.

105. This expert engineer said this : " He was astounded at the slow method and leisurely work of the men generally, but more especially those in the boiler-shop." Have you expressed anything on those lines to Mr. Ronayne ?—Somewhat on those lines, but that gave a different meaning. I said that the slow method was due to the appliances the men had to use.

106. You went to Addington to have a friendly chat with the men, and then you told Mr. Ronayne that you were astounded at the slow method and leisurely work done ?—No, I did not.

107. Did you or did you not say that the men worked in a slow or leisurely manner ?—I do not know. I found that the discontent in Addington at that time was such that there was very little wonder that the work was not turned out as cheap as it should be.

108. What was the discontent about ?—There was extreme discontent about classification.

109. How did you find out about the discontent ?—By the men interviewing me. Several men at the works spoke to me about this particular classification, and I rather fancied I made an appointment with two of them to meet me in the evening and go more exhaustively into the question.

110. Who were they ?—Mr. O'Brien and Mr. Ruddle.

111. You said all your chats were with them in the dinner-hour ?—Not necessarily.

112. You went there to keep them from their work ?—No.

113. Do you not think that chatting with a man who is at work is calculated to interfere with his work ?—No. I never found the men to resent it very much. In a boiler-shop the nature of the work is such that the men are bound to stand still at times, and by an outsider it might be thought that those men were idling their time, but to a man who is acquainted with the character of that work that would not so appear. At such times the men would have time to chat.

114. Then, in this memo. occurs the sentence, "The men in the smiths' shop were also doing a Government stroke" ?—I never said that at all.

115. You heard what Mr. Ronayne said ?—Yes.

116. That these statements were substantially what were told him by the expert ?—Yes.

117. And you believe the expert referred to was yourself ?—He may have had other advice, or he may have inferred from what I said that the men were loafing where I did not imply that at all.

118. The men were not loafing ?—As much loafing is done there, I suppose, as anywhere else.

119. Did you see any loafing on the occasion of your visit ?—No.

120. Another statement of this expert, as given by Mr. Ronayne, is this: "There appears to be an utter disregard of the foremen's presence in any of the shops, the men being allowed to talk, loaf, and do a very indifferent day's work." Have you said anything like that to Mr. Ronayne ?—Those are not my sentiments at all.

121. You are quite satisfied, from your visit in November last, that the men at Addington Workshops were not loafing ?—I am prepared to say that loafing was not going on. I say that at Addington there are some men who take it remarkably easy; but to class the whole of Addington in that category as the memo. does, or even a majority or a goodly number of them, is absurd.

122. It is absurd to say that the men at Addington are idlers and loafers ?—Yes.

123. You have been there very frequently ?—I go there about twice a year; but my firm opinion s that there are just as few loafers at Addington as elsewhere.

124. Have you seen any men taking things remarkably easy at Addington ?—Yes.

125. You admit that you have waited on Mr. Ronayne these last few months ?—Yes.

126. Can you give us any indication of how long the interview lasted ?—I should say about half an hour.

127. During the course of that interview you were telling Mr. Ronayne how satisfied you were with the work that was carried on at Addington ?—Other points came up.

128. How long were you interviewing Mr. Ronayne, and what were you telling him against the men ?—I will not answer that.

129. You say you were not saying good of the men: what were you doing ?—Both Mr. Ronayne and I have told you that I spoke very highly of Mr. Henderson and of Mr. Wilson, a fitter. I approached Mr. Ronayne on behalf of Wilson and Watson, to get the extra 6d. a day, and I was met with the statement from Mr. Ronayne that Addington was not doing as well as it should.

130. In that interview with Mr. Ronayne did you make any complaints whatever against the men ?—I do not know that I did. I do not think I did.

131. You make that statement in face of what Mr. Ronayne said this afternoon, that that letter contained what an expert said ?—Yes.

132. You think Mr. Ronayne has taken a wrong inference from your remarks ?—Yes.

133. It is incorrect that you made any complaint against the men ?—Yes.

134. You have nothing against the men ?—I said before that there are men at Addington who are not doing quite as much as they might.

135. That is the result of your observation ?—Yes.

136. In what department are these men ?—I won't say that.

137. Do you believe that you made any statement to justify Mr. Ronayne writing that letter ?—I should say that the statements I did make were sufficient to convince Mr. Ronayne that things were not going right in Addington, because I told him there was extreme discontent, and that the method of doing work was slow. In consequence of complaints I had made to Mr. Ronayne, and the knowledge which he and others had expressed in regard to Addington, he may have thought it necessary to bring the subject immediately under the notice of his inferior officer, and accordingly sent the bald statement just in the same way as a private employer might to one of his heads of department about which a complaint had been received. He would never expect that it would go past the Mechanical Engineer or beyond the manager and foreman. It was drawing the attention of the Chief Mechanical Engineer to the fact that there was something wrong and asking him to inquire into it, and if that wrong existed to redress it, so that the work would be done in an economical manner. I do not blame Mr. Ronayne particularly for sending out a memo., because he firmly believed it would not be made public.

138. Is it not a fact that you visited the shops and afterwards interviewed Mr. Ronayne little thinking it was to be made public, and that you would afterwards have to refute or prove it ?—I have not said anything of that nature.

139. You mention the fact of men speaking to officers in an insulting manner: have you any personal knowledge of such conduct on the part of the men ?—I have already said that it was hearsay entirely.

140. Have you ever heard a man speak in an insulting way to a foreman ?—In a general way, yes.

141. When ?—I will not say.

142. You still adhere to the statement that Mr. Ronayne is wrong when he says that those words regarding loafing and Government stroke are practically yours ?—I say Mr. Ronayne is mistaken.

143. What led you to come here to-day ?—I want to put myself right about what I did in the matter, and I have already admitted that some of the words in the memo. were words of my own, and in consequence of that I thought it was right that I should come. Any public man who can bring matters into a better state than they are at present should come forward. I am only anxious that a better system should be brought into vogue.

144. You have seen a statement in the newspapers that you were the man who interviewed Mr. Ronayne ?—I should say that such a statement had not been published. I would take the first opportunity of bringing that paper to book.

145. Are you an expert or not ?—I do not know.

146. *Mr. Niven.*] You told us to-day that on several occasions you recommended more leading hands, and that in some cases they have adopted your recommendation ?—No, I did not say that.

147. You have recommended them ?—Yes.

148. In what capacity did you do so ?—As one who has the interests of the works at heart, and in the interests of the Dominion. I have always taken a great interest in Addington and in the men, and thought I was justified in making such recommendation.

FRIDAY, 12TH MARCH, 1909.

JOHN GORDON FORBES, Foreman Boilermaker at Petone, examined. (No. 3.)

1. *Mr. Beattie.*] Did Mr. Jenkinson visit the Petone Workshops on the 19th January ?—He did on that date or thereabouts. I can identify the date by the appearance in the Press of the etter of the General Manager. The day that Mr. Jenkinson visited Petone was the day previous to the appearance of Mr. Ronayne's letter.

2. Mr. Ronayne's letter appeared on the 10th January, so that Mr. Jenkinson's visit would be on the 9th ?—Yes.

3. Did Mr. Jenkinson make any remarks to you when he visited the Workshops ?—Yes.

4. Will you tell the Commission the nature of those remarks ?—They were in the nature of a comparison between Petone and Addington Workshops, as regards the activity and general appearance of the Workshops—that they appeared to be very slow in Addington, and that we appeared to be alive at Petone. He and I worked at Addington years ago together, and Mr. Jenkinson said the place was not anything like what it was when we worked there, and that at Addington now they were practically asleep, and we were alive.

5. Did Mr. Jenkinson make any remark about Foreman Henderson ?—No, he made no personal remarks.

6. Was this reference of Mr. Jenkinson's to the sleepy nature of the work directed with regard to the men ?—I could not answer that. He appeared to think that the whole system at Addington was slow in comparison with Petone, but whether it was in regard to the management, or the work, or the men I do not know.

7. Did he give you any details at all ?—No, just a general remark that they appeared to be slow at Addington in comparison with us.

8. How long is it since you worked at Addington ?—I left Addington in 1896. I went from there to Wanganui, and from Wanganui to Petone.

9. From Mr. Jenkinson's remarks, did you understand that he had recently visited Addington ?—He told me distinctly he had visited Addington about a week before. When he made the remark about Addington being slow I asked him whether he had been down there recently, and he said, "Yes, I went there about a week ago."

10. Did he make any remark as to whether he would present a report to anybody ?—No, he made no remark of that kind. The only remark that would lead me to believe that he was on an inspecting tour was when he shook hands and said, "Well, I will go and have to do a bit more." Mr. Brooks was with me at the time, and Mr. Jenkinson went from where we were standing (where the vices were) and went and looked along another row of vices and proceeded right through the shop. From our shop he went to the tarpaulin-shop, looked in there, and from there to the moulders' shop, and then we lost sight of him. He also looked into the bogie-fitting shop. Mr. Brooks seemed to pick him as being on tour also by the way he went about.

11. Has Mr. Jenkinson been in the habit of frequently visiting Petone Workshops since you have been there ?—He has been there, I think, about six times—it might be more.

12. The impression he left on your mind was that he was unfavourably impressed at Addington ?—Undoubtedly. I could take nothing else from his remarks.

13. *Mr. Niven.*] You have worked both in Addington and Petone shops ?—Yes.

14. In the same position—foreman boilermaker ?—No, I was an ordinary working-boilermaker in Addington.

15. Was it your impression that Addington was slow when you were there ?—No.

16. How did it compare with Petone ?—Every bit as good, and better.

17. *Mr. Hampton.*] From the remarks Mr. Jenkinson made to you, you and others inferred that he was the expert engineer mentioned in Mr. Ronayne's letter ?—That is so. I am still of that opinion.

HARRY HUGHLINGS JACKSON, Locomotive Engineer, Hurunui–Bluff Section, examined. (No. 4.)

1. *Mr. Beattie.*] What is your position ?—I am Locomotive Engineer in charge of the Hurunui–Bluff Section.

2. How long have you been in the Railway service ?—Since 1876, I think.

3. For what length of time have you occupied your present position ?—Since June, 1900.

4. The Addington Workshops are under your charge, together with Hillside and Invercargill ?—Yes.

5. Are you frequently around the Addington Workshops?—Yes. Of course, I may say that fully one-third of my time is occupied in travelling about to Dunedin, Invercargill, Queenstown, and various places, and usually after a fortnight's trip there is a good deal of correspondence to attend to, and I cannot spend as much time in the shops as I would like. But when I am in Addington I am in the shops a good deal at all hours, and, of course, drop in in all sorts of quarters.

6. During your charge of the Hurunui–Bluff Section have you seen any evidence of loafing or inattention to duty at Addington?—Well, of course, where you have 630 men employed you are bound to find somebody occasionally idling, but taking them as a whole they are a very fine body of men, and no more idling goes on at Addington than anywhere else. In fact, if idling goes on there I give the man who does so credit for being pretty clever. The foreman there would not tolerate anything of the sort for a moment. From time to time cases have occurred, and reports have been sent to head-quarters and the men suitably punished. As far as I am personally concerned, no case, no matter how trivial, has been passed over. All cases have been dealt with in a suitable way.

7. Coming now to the boiler-shop in particular, against which certain charges have been levelled, have you any reason to suppose that the boiler-shop is less efficiently supervised than the others?—No, I am quite satisfied it is efficiently supervised. In fact, if anything, I think Mr. Henderson is a little bit harder on his men than any of the other foremen.

8. With regard to the discipline at Addington Workshops, can you make any statement?—As far as my own personal knowledge goes, the discipline is quite satisfactory. Any cases of discipline which are considered not to be up to the mark, on being reported, are dealt with in a suitable way.

9. Do you consider the output of work at Addington satisfactory?—Perfectly satisfactory, in my opinion.

10. There was a reference made yesterday to a machine which was thought by the witness to be a milling-machine, which had been installed at Addington, and which was stated to be practically unused?—That statement is quite incorrect. There is no machine at Addington which is never used, because we could do with more machinery than we have got. The machine which was referred to was the new radial milling and drilling machine, which cost considerably over £1,000, and it is practically in regular use.

11. There was reference made yesterday to a large planing-machine which has been at Addington, according to the witness, for many years, and which was stated to be of very little value to the Department?—The machine I understand that was referred to is the large planing-machine inside the main doors. This machine is used for special work that no other planing-machine in the shops of the Government Rai ways can do. All the large turntable centres, weighing 6 tons, have to be done there, and other large jobs. I can say that, at any rate for the last eight years, that machine has been in regular and constant use. On many occasions it has been worked both day and night. It certainly never stands idle.

12. You regard it as an essential machine?—I regard it as a really valuable machine for the class of work we have for it. In fact, we could not do without it.

13. Can you give the date when a boilermaker named Ross left the service?—It would be in 1899. It was before I was transferred to Addington.

14. Can you state when Earwaker was appointed a leading hand?—July, 1900.

15. And he is still leading hand in the boiler-shop?—Yes.

16. Mr. Jenkinson also mentioned a boilermaker called Hislop—is he still in the service?—He retired on superannuation some time ago.

17. Mr. Jenkinson stated yesterday that he had not seen any pneumatic hoists in the Workshops. Can you state the position?—I cannot tell you how many there are, but there are dozens and dozens. Every large machine has pneumatic hoists, and in the points and crossings shop there are four, but they are so arranged as to cross from side to side and serve all the machines, and also be used for any material that has to be raised from the trucks. Most of these, I may say, are locally made lifts, but we have some imported lifts.

18. From your own observation have you noticed that it is somewhat tedious to get certain rivets closed in awkward corners of boilers?—Undoubtedly it is.

19. And it is quite possible, when operating on a difficult corner, that some minutes may elapse between fixing one rivet and the next?—In awkward corners it may take five minutes where they have to lower or twist the boiler—that is, from the first start of the operation until the snips are released finally.

20. That, of course, only refers to awkward places?—Yes.

21. With the general run of boiler-riveting are you satisfied that expedition is being shown? As far as the men are concerned I am quite satisfied that they are putting in a fair number of rivets per day—approximately two hundred rivets for eight hours. That is working on 1⅛ in. rivets, when the snips cannot be released immediately. The machine has to be held on to allow the rivet to cool slowly in order to get a close joint. With a 250 lb. pressure on a boiler you have to be careful.

22. The statement was made yesterday that ninety rivets was the day's work: is that correct?—No.

23. Would it be of assistance if you had the hoisting arrangements electrified for the lifting-power?—Undoubtedly.

24. Would it be of assistance if the hoisting arrangements generally were electrified?—Oh, yes! it is a thing badly needed.

25. It is a matter you have discussed from time to time?—Yes, it has been discussed during the last seven or eight years, and the question has been brought up on paper on two or three occasions; but I know it is fully seven years ago since the question was first discussed. A price was obtained for electrifying the cranes.

26. With regard to staffing, have you any difficulties in the way of obtaining staff, or the method of obtaining staff?—The present arrangement is undoubtedly too cumbersome. From the time you ask for the staff to the getting of the men at work sometimes months elapse. If you wish it I could give particulars of the system. The position is this: If I require any additional staff—that is, new hands—I correspond direct with the Chief Mechanical Engineer, and I presume, if he is satisfied that those extra men are necessary, he forwards his recommendation to the General Manager.

27. *The Chairman.*] Do you ask for additional staff on your own initiative, or does it come through the foremen?—I get reports from the Workshops Manager that he thinks extra staff is necessary, and then I take the matter in hand for the first time.

28. *Mr. Beattie.*] And what happens after you get the request?—I apply to the Chief Mechanical Engineer, and after that I have my instructions from the General Manager's office direct. They probably write down and tell me that this extra staff is approved or not approved, and at the same time they send me a list of fitters, turners, blacksmiths, labourers, giving me the names and addresses, and I have to communicate with these persons in the order in which they are named on the list. It may happen that the first on the list is dead—I have known such a circumstance—the second on the list may be out of the country, and the third may be in a regular job and does not want the work, and so the operation goes on until I find some one who is willing to start work. This man is then given a start, and after he has been at work for three weeks he is reported on, and if his work and conduct up to that time is not satisfactory he goes. Then the same operation has to be gone through again, starting with the next man on the list. You can therefore see that it frequently takes a very long time before we get the staff that we actually require, and in the meantime the work is not going on as it should do. Then, with regard to filling vacancies, I deal direct with the staff office. When a man is retired on superannuation or dismissed, and I want a man to take his place, I write to the General Manager's office, and I am frequently told that it is not intended to replace this man; and if I think he is absolutely required I have to return to the charge from time to time, and sometimes have to write to Mr. Beattie to assist me to get this vacancy filled. Of course, the General Manager cannot be expected to see to these continual applications for labourers and so on, and the matter must necessarily be left to somebody in the staffing office, and this is the person I have usually to correspond with as regards staff. Occasionally, when we get a new machine and I want a man to work it, I am told to take a man off another machine. I protest, and say it is no use getting a valuable new machine and having no one to work it. A new machine is put in to enable us to turn out more work, and therefore requires additional staff to work the machine. There is one other matter I might mention. Of course, the Classification and Superannuation Acts have to be considered in connection with this matter of appointments. If there is a vacancy, say, for a holder-up or a striker, we have to try the most suitable labourer, and occasionally we have to try a good many before we get the vacancy filled. In fact, there are cases where it has taken months to fill a vacancy of that sort. Some men will not accept the higher position, and others are tried who are found to be quite unsuitable. Altogether in that direction the staffing arrangements are too cumbersome.

29. If you had the authority to engage casual labour as required within certain limitations as regards expenditure, and authority to pay off casual labour when not required, would that facilitate your work?—It would undoubtedly, but I consider that authority should be given to the Workshops Manager. I am often away for a fortnight, and frequently a fortnight's delay is serious. Considering the way we are pressed to push on with the new locomotives a fortnight means a good deal.

30. If you had local authority in connection with casual labour it would facilitate the work?—Undoubtedly. There is one other point I might mention, and that is in connection with getting rid of the staff. That also is rather a cumbersome method in my opinion. I consider that if we find it is necessary to shorten staff we should be able to do so immediately. But at present we have to correspond with the Head Office, and sometimes delays occur. Also, there are certain limitations in paying off men. Single men have to go first, and married men have then to be considered. It frequently happens that amongst the single men are some very excellent hands which we are unable to retain.

31. There was a statement made yesterday by Mr. Jenkinson that an additional leading hand was essential in the boiler-shop?—My opinion is that such is not required. We have a foreman boilermaker and a leading hand. There are two classes of work that have to be undertaken—one is new work; the other is repairs. My own opinion is that two men are quite able to look after this work.

32. There was some question as to Mr. Henderson's time being too much occupied with clerical work?—I know from my own knowledge that he cannot have much clerical work to do, and if he wants any assistance he can always get it. Mr. Henderson has never complained, as far as I am aware, about having too much clerical work to do, and I do not think he has too much to do. I may say that from time to time additional leading hands are appointed, and the appointment of others is now under consideration. As the work increases, the number of leading hands is increased.

33. Coming to the relative cost of building locomotives at Addington or in a private foundry, and assuming that the private foundry devotes itself nearly exclusively to the building of locomotives, would you consider the private foundry had an advantage in being able to turn out the work?—In my opinion, where you do new and repair work in the same shop, there is bound to come a time when one or other must suffer, and any officer who has any respect for his reputation will see that repair-work is kept up, because if the rolling-stock is allowed to get into bad order, and the general public is affected, there is trouble immediately. As a matter of fact, for years past the Hurunui-Bluff Section has been so short of rolling-stock that before an important holiday, such as Carnival Week, Christmas, or Grand National Week, it has been necessary to turn out every engine from the shops. That means that for three or four weeks before all the big holidays we have to concentrate our energies on repair-work, and very often the new locomotive work has to suffer, and sometimes seriously.

34. Can you state the net cost of labour and material for the three A engines ?—The three A locomotives under discussion were built for—wages, £2,531 4s. 4d.; material, £1,779 0s. 2d. That is a total of £4,310, and in that is included the cost of fitting the Westinghouse brake (£210), and the cost of painting (£38). Thirty-eight pounds is our cost of painting, but the contract people only paint in lead colour, which would probably run into £18 or £20. That means that the total cost of our locomotive was £4,310, and if you add to that the profit or commission which we charge on our locomotives—namely, £647—it brings the total cost of the engine up to £4,957. The percentage we charge as profit or commission is 15 per cent.

35. The contractor does not fit the Westinghouse brake, so that the net cost for labour and material of the A locomotive at Addington is £4,062 ?—Yes.

36. Add to that £20 for preparation and painting done on the contract engine, and it makes £4,082 as the cost of the Addington engine in precisely the same condition as the contractors' engine is delivered ?—That is so.

37. What is the price of the contractors' engine ?—£3,998.

38. That makes a difference of £84 in favour of the contractors' engine ?—That is so. I would like to say here that we do a large amount of work for the contract locomotives. We do the whole of the wheels and axles, and fit the crank-pins, which is a pretty large job, and for which we charge practically the net cost. We make nothing out of the amount charged to the contractor for these wheels and axles. In addition to the wheels and axles we supply all the bronze castings, we make all the lamps, we make all the bearing-springs, and we supply numerous forgings.

39. Has it happened that you have to take gear off engines at Addington in order to keep the contractor supplied ?—Yes. In connection with the three locomotives that have been brought under discussion, the wheels and axles that were already prepared—and, speaking from memory, I believe one set was really under the engine—they all had to be sent to the Thames because the material ordered by Price Bros. had not arrived. I may also say that, from the time the first lot of wheels and axles were supplied to Price's, we were almost every week urged to keep on sending them stuff, and this had to be done to the detriment of our own work. Frequently gear had to be taken out of machines in order to enable us to push on with the work for Price Bros.

40. From time to time, as similar work is done at Hillside and Addington, you, I presume, prepare costs in detail ?—That is so.

41. Do you find that either of these two shops is always ahead of the other, or does it vary ?—It varies. In some cases Hillside does the work cheaper than Addington, and the reverse is the case at other times.

42. Do you consider the points-and-crossings shop a thoroughly efficient shop ?—Yes, I think it is really the most up-to-date shop we have.

43. Is it within your knowledge that the price at which you can manufacture points and crossings at Addington at a profit is a lower price than that of tenders from outside firms which have been received in recent times ?—I know that some months ago tenders were called for 100 sets of points and crossings. We were extremely busy, but the prices were so very much higher than ours that no tender was accepted. The lowest tender, so far as I remember, with the rails supplied, was at a much higher rate than ours, including rails and labour.

44. Therefore, although we were pressed for points and crossings at that particular time, it was considered desirable to make them ourselves rather than pay the enhanced price outside ?—That is so.

45. Do you consider that the changing of the staff from new to old work is a handicap ?—Undoubtedly.

46. In other words, it is a handicap to have to do both new manufactures and repair-work in the same workshop ?—In my opinion it is a great handicap.

47. Can you state the organization at Addington ?—Under myself there is the Workshops Manager, seven foremen—one in charge of each branch, a foreman blacksmith, a foreman boilermaker, a foreman carpenter, a foreman painter, a foreman moulder, a foreman fitter, and a foreman in charge of the new locomotive works and the points and crossings. Under these foremen there are numbers of leading hands. As the work increases, leading hands are appointed wherever it is considered necessary.

48. What is your opinion with regard to the efficiency of the plant and appliances ?—We have some very fine machines at Addington, but we are undoubtedly deficient in some respects. For instance, our lifting-gear is certainly not up to date, and in my opinion our power appliances are also behind the times. Representations have been made on more than one occasion in both these directions, but I have always understood that it has been a question of money. Some eighteen months ago strong representations were made about remodelling the machine-shop, but up to the present nothing has been done in the matter.

49. What is your idea with regard to an improvement in the lifting appliances ?—I think electric cranes would be found most suitable. If electric power was installed to drive the machinery and the cranes a very large saving would be effected. There is no doubt that many of those old boilers we use burn a tremendous amount of coal, and a very large saving could be effected by doing away with them altogether.

50. So far as your knowledge goes, do you think the system of work adopted at Addington is satisfactory ?—I think the system of distributing and laying out the work, and so on, is satisfactory. That is, of course, under the control of the Workshops Manager.

51. In the case of a pressure of work, would you recommend an increase in the number of men and the amount of machinery, or would you be in favour of running the existing machinery on an extra shift temporarily ?—If the increase in work is only of a very temporary nature it would not be economical to purchase a large amount of machinery just for that short time; but where the work is obviously steadily increasing, and more machinery is wanted, I think it would be far better to provide it than to

work a night shift. I do not think you get the same amount of work on the night shift as you get from a day shift.

52. At Addington the Railway Department does all its own iron castings ?—That is so.

53. Are you satisfied with the method of production and the results ?—Quite satisfied. Until we had our own iron-foundries we were in continual trouble. We could not get the castings from the contractors, and frequently they were not as they ought to be. Now we can get the castings when we want them, and very often before. But under the old system we frequently had to wait weeks and weeks, and could not get on with the work at all.

54. Can you give the total number of the iron castings turned out in 1908, for instance ?—We turned out at Addington 558 tons of castings.

55. On the issue rates of 12s. 6d. per hundredweight for castings over 7 lb., and 15s. per hundredweight for castings under 7 lb., does the Department make a clear profit ?—Yes, usually we make a very good profit.

56. Will you explain how the Manufacturing Account is dealt with ?—All labour and material is charged for, and we issue from the brass-foundry every description of ordinary brass castings at 1s. per pound, and the whole of our steel castings are issued at 4½d. per pound, and we make profits on all these amounts.

57. These Manufacturing Accounts are balanced up at the end of each financial year ?—Yes.

58. And all repairs and renewals are charged to the Manufacturing Account ?—That is correct.

59. So that the Manufacturing Account bears all the working-expenses of that particular branch ?—That is so.

60. What is the issue rate of the 70 lb. points and crossings ?—With an angle of 1 in 7½, £25 10s.; with an angle of 1 in 9, £28.

61. Does that include the rails and materials ?—Rails and materials, and in addition we have to pay for the upkeep of the machines, &c. That is all charged to the Manufacturing Account.

62. Will you give a comparative statement of the outside tenders which were received for the manufacture of points and crossings—*i.e.*, exclusive of rails ?—The Department was to supply the necessary rails for the making of these points and crossings, and the lowest tender for the 1-in-7½ angle was £30, and for the 1-in-9 angle £32 10s. per set.

63. That, of course, is exclusive of the rails ?—It is practically for labour only. Another tender was received at £58 per set for both classes of these points and crossings, also exclusive of rails.

64. Can you state the aggregate amount of wages, with the number of men employed, at Addington ?—For the financial year ending 31st March, 1901, the total wages paid at Addington amounted to £51,630 1s.; the number of employees was 458; and the average wage per man per month was £9 6s. In 1908 the wages totalled £73,899 11s. 11d.; 586 men were employed; and the average wage per man per month was £9 14s. 5d. I may say that from that date until the present time the average wage has gone up to £10 1s. 1d.

65. Would it be an advantage in the manufacture of locomotives if you were able to lay them down in sets of five or ten ?—It would undoubtedly. I may say that, after very strong representations, authority was given to increase our construction-shop by 60 ft., and about twelve months later—that is, about July of last year—this addition was completed, and now we can practically lay down four locomotives where before we could only lay down one.

66. The Workshops Manager of the Newport Railway Workshops, Victoria, expressed the opinion before a Royal Commission that a saving of 25 per cent. in the cost of labour would be effected by building ten engines at a time as compared with building one or two at a time. Do you agree with that ?—There is no doubt that a very large saving would be effected by doing the work in sets, but what that saving would be I am not in a position to say. I could not say it would be 25 per cent., but no doubt it would be a very large saving. It stands to reason that, if men in the various departments can do their work in continuity without having to drop one thing and take up something entirely different, the cost of construction would be very much cheaper. For instance, if you could afford to set up machines to do thirty or forty cylinders without stopping, you could save a great deal on the turning of cylinders alone.

67. Nothwithstanding all these drawbacks, are you satisfied that the work has been done at Addington as expeditiously and as economically as could reasonably be expected ?—I think so.

68. You are satisfied that the best has been done with the appliances at your disposal ?—Yes.

69. *The Chairman.*] I believe you are directly responsible to the Chief Mechanical Engineer ?—Yes.

70. After men have been taken on, do you communicate that fact to the Chief Mechanical Engineer or the General Manager ?—My correspondence with the Chief Mechanical Engineer practically ceases after I make the application for the extra staff.

71. The foremen have no power to engage men ?—None at all.

72. Has the Workshops Manager ?—None at all.

73. You as Locomotive Engineer have no power ?—No. The only staff that can be engaged without authority are day-to-day casuals, or men that are paid by the hour, and who come on for half a day for handling coal, and so on.

74. Suppose the foreman considers it desirable that a man should be discharged, has he power to discharge that man ?—No.

75. Has the Workshops Manager ?—No.

76. Have you ?—No. I can merely report the matter and make a recommendation.

77. What is the routine followed if the foreman desires a man discharged ?—If it is for any breach of the rules or anything of that sort, the foreman would mention the man's name, and after an investigation the report would be sent on to the Head Office with my recommendation.

78. It would not go to the Chief Mechanical Engineer ?—No. With regard to staff matters, I take all orders from the General Manager's office, but within the last twelve months I have had instructions to send applications for extra staff to the Chief Mechanical Engineer.

79. So that, if a foreman considers a man is not doing a fair day's work in the workshops, and the Manager agrees with him, it is not an altogether easy matter to discharge that man ?—It is not. You must have a clear case and absolute proof.

80. In every case in which it is desired to dismiss a man the case may be submitted for trial ?—That is so. The foreman, the Workshops Manager, and myself have to stand the risk of a case before the Appeal Board, and we have to go forward, and be cross-examined and questioned, and stick to our guns ; so that a very clear case is wanted.

81. Does this method decrease or increase the efficiency of the shops ?—In my opinion it decreases the efficiency.

82. Can the foreman or the Manager fine the men for breach of discipline ?—No ; nor can they punish them in any way. That is all done from the Head Office. We have power of suspension. If a man commits a very grave breach of the regulations we can suspend him, but there our power ceases.

83. Mention was made yesterday of men speaking to their superior officers in a manner that would not be tolerated in a private shop. Has any such instance come under your notice ?—I cannot remember an instance, and I do not believe any foreman or manager would accept such a position as that.

84. Have there been any cases where recommendations have been made by the officers that the services of a particular man should be dispensed with, and have those cases been investigated during your time ?—I dare say such cases have arisen.

85. What has the decision been ?—I do not know that I can call to mind any particular case, but it is quite possible ; in fact, I know there have been cases where the recommendation for discharge has been made, and it has not been acted upon.

86. That is what I want to know. Are the recommendations of the officers always taken ?—Oh, no ! In many cases we make no recommendation at all ; the facts are stated, and the papers sent on.

87. Do you know anything about discontent amongst the men because of the manner in which the Classification Act is administered ?—Well, I think that when the amended Classification Act came into force the matters were not very clear. There was a good deal of correspondence with the Head Office about it before final arrangements were made to pay the extra allowance. In the first place, the payment of the allowance was very restricted, and was very awkward to deal with. I do not know, however, that there was any great discontent ; but representations were made both by Mr. Richardson and myself, and so far as we were concerned the matter was put on a much sounder footing. When men are now engaged on the class of work for which the extra allowance is to be paid, it does not really matter what position the man holds—he is paid the extra allowance so long as he is engaged on this work. Previously one or two men in a large department had to be selected, and at certain times two men could not do the work, and half a dozen would be required. Now, however, we have practically a free hand, so that any man engaged on this particular class of work can be paid the allowance whilst he is on that work.

88. Are persons who are admitted to the workshops during working-hours permitted to discuss matters with the men ?—No one should be admitted except on an admission-ticket, and this ticket notifies that visitors must not talk to employees.

89. That applies to visitors of every class ?—Yes, except those who come down with a letter of introduction from the Mechanical Engineer, and whom either I or Mr. Richardson personally show round the shops. I may say I have seen people in the shops who had not a permit. That was some months ago, and I gave instructions that people of that description must be provided with permits and shown round the shops by some responsible officer.

90. Is there a fixed percentage which you add to the cost of labour and material to meet the cost of foreman's salary, supervision, and so on ?—Yes ; 15 per cent. on the cost of wages and material.

91. Is there any charge made for interest and first cost of plant, &c. ?—That I cannot say.

92. Is there any allowance for depreciation of buildings ?—I cannot say.

93. You make no allowance for the upkeep of buildings, or rent, or first cost of buildings ?—So far as I know, that is not done. So far as points and crossings are concerned, the percentage is not charged. Sometimes we make a very large profit, and sometimes a much less profit. But the price quoted is the net cost of wages and material. Those other charges have to come out of our profit whatever it may be.

94. *Mr. Niven.*] Can you tell us roughly how many men are employed in the boiler-shop ?—I should say that Mr. Henderson has to control eighty or ninety men.

95. Are they mostly casual men ?—A large proportion are permanents ; but at the present time there are a number of casuals. We are running a night shift in the boiler-shop, for which there is a leading hand ; so that there are two leading hands in the boiler-shop at present.

96. Does the leading hand do actual work, or does he supervise ?—Supervises only.

97. He is really a second foreman ?—An assistant foreman.

98. Would you be prepared to say that the boiler-shop was a very much out-of-date establishment ?—I would not say that the whole place was out of date, but I would say that it could be very much improved. It is not large enough. More room is required, and many of the appliances are certainly considerably out of date.

99. Regarding the lifting appliances, do you think that the present buildings could be adapted so as to carry electric cranes ?—I think so ; the boiler-shop could.

100. Take the machine-shop ?—Well, of course, the roof of the machine-shop is very low. That is a shop really that should be remodelled before any other, in my opinion.

101. *Mr. Roberts.*] Have you had any experience of hand-riveting ?—We do a good deal of hand-riveting.

102. Have you any idea how many rivets could be put in by hand on the average per hour—that is, the ordinary rivet you use in the locomotive-boiler shop ?—Those rivets are 1⅛ in.

103. They would be out of the question by hand ?—Yes.

104. Do you consider that 200 rivets per day of eight hours is a fair output for an up-to-date machine such as you have at Addington ?—I do, with the appliances that we have.

105. With better appliances you could do a larger number of rivets ?—I am certain of it.

106. The machine is not working up to its full capacity in that respect ?—I do not think it is.

107. Do you always get the class of labour you want ?—Well, as I explained, we get a list from Wellington, and we have to take the men whose names are on that list in their order; and if a man is found unsuitable after a three-weeks trial we have to take the next man, and the whole operation starts again.

108. Can you pay these men off yourself ?—Oh, no! We have to send the matter back again to Wellington.

109. That involves a considerable loss of time ?—Yes.

110. Do you keep the time of the different jobs in the workshops ?—No; the Workshops Manager has a timekeeper and a set of clerks.

111. Will you give an outline of the system of checking that is adopted ?—So far as we are concerned locally, we have a time-sheet in which the men enter their time each day. That is supposed to be checked by the foreman and initialled daily. At the end of the week these time-sheets are torn out of the book, and in the Workshops Manager's office the time is taken out on to a second sheet, and those sheets are sent on to Wellington, where the accounting is done. There is no accounting done locally at all.

112. Is there any system of checking the odd work ? If a man is on, say, side-rods, is the time for that kept separately ?—No. There is an order for, say, the repair of a locomotive, and the time taken on that work, be it for axle-boxes, side-rods, or wheels, all goes down on that order

113. There is no check on each particular man's work ?—No, except that of the leading hand or foreman, who sometimes takes note of the time a man takes on a particular job.

114. There is no record which tells from day to day what any individual does ?—No; to do so would involve a very elaborate system.

115. In the cost of points and crossings in your own shop that you gave, was the 15 per cent. included ?—No.

116. Just the bare cost for wages and materials ?—Yes.

117. Why do you not add the 15 per cent. on to the cost of points and crossings, as is done in the case of other work ?—In all our Manufacturing Accounts we make a certain profit, which may be sometimes large and sometimes small. That is the method that has been in vogue for dealing with Manufacturing Accounts for many years. I do not know by whom it was instituted.

118. How would you compare the cost of points and crossings as turned out at Addington with what could be turned out in a private shop ?—We can add 15 per cent. on to our price, and compare roughly.

119. Have you any idea what these points and crossings would cost if imported ?—No; but I think particulars could be obtained.

120. Do you consider that the plant in the foundry is efficient ?—I do not consider the lifting-appliances efficient—that is, the crane.

121. Can you give the rates of pay of the different classes of men employed in the shops ?—There are practically three grades of leading hands, entitled No. 1, and No. 2, and "other leading hands," for which there is no number. The first-grade leading hands get 12s. and 12s. 6d.

122. That applies to all trades ?—Yes. The second-grade leading hands get 11s. 6d., and the other leading hands 11s. per day.

123. What is the pay of the ordinary workmen ?—Ten shillings and sixpence per day is the maximum pay, except for those who are engaged in marking off new work the minimum pay is 9s. 6d.

124. *Mr. Hampton.*] As Locomotive Engineer for the Hurunui–Bluff Section, I understand that you have the supervision of Hillside and Invercargill ?—To the same extent as at Addington.

125. Do you frequently visit those works ?—Yes, regularly.

126. What is your opinion as to the discipline at Hillside and Invercargill as compared with the discipline at Addington ?—Practically the same.

127. Addington compares quite favourably ?—Quite.

128. As regards the work, how do you think that compares ?—I do not think there is any noticeable difference. As I said, in some cases Hillside does work cheaper than Addington, and *vice versa.* Hillside has certain appliances that Addington has not got, which enables them to deal with certain classes of work cheaper than Addington can do.

129. As regards discipline and work Addington compares favourably with Hillside and Invercargill ?—Yes.

130. Have you ever had supervision of any other shops in New Zealand ?—I have worked in them all.

131. In your opinion, how does Newmarket compare with Addington ?—It is thirteen years since I was at Newmarket. When I was there they were a really fine body of men, and turned out good work; but I do not know that they were any better than other works I have had the control of.

132. Addington now compares favourably with what Newmarket was thirteen years ago ?—I think so.

133. Do you know anything about East Town ?—I was in charge there at one time.

134. What are your impressions as regards the discipline and work done there ?—I think Addington is quite equal to any of them.

135. Have you ever had the supervision of the Petone Workshops ?—Not directly. I have spent a good deal of time at Petone, but when I was on that section I was Travelling Locomotive Engineer. There was no Locomotive Engineer at that time on the Hurunui–Bluff Section.

136. You have seen a good deal of the work at Petone, and frequently visited there ?—Yes, years ago.

137. In visiting Petone were you struck with the fact that the men showed a brisker movement than the men in the other shops ?—No, I was not.

138. How does the discipline and work at Addington compare with what you observed in your visits to Petone ?—It is more than nine years since I was at Petone, and then I had no direct charge of the men ; but I am quite satisfied that the discipline was certainly not better than it is at Addington.

139. You did not notice this brisker movement ?—Certainly not.

140. Have you as Locomotive Engineer ever in the course of your duties been brought into close contact with any of the workmen ?—Not very close.

141. You must at times have had conversations with some of the workmen at Addington ?—Yes.

142. Have any of these workmen with whom you have had conversations used insulting language towards you ?—No. I must say that I have never had that experience during the thirty-two years and a half I have been in the Railway service.

143. Do you think that the certain amount of security of their position which is given to the men as the result of the Classification Act, and with the right of appeal, is taken undue advantage of by the men ?—I do not think it is.

144. Could you tell us the number of men employed in the blacksmiths' department, including the forge ?—I have not the number.

145. Do you think that in the blacksmiths' shop and forge 120 men would be too high an estimate ?—I should say the number would be that or thereabouts.

146. How many leading hands are there in the blacksmiths' shop ?—At present there are none.

147. You say that no one has used insulting language to you in the shops ; but, supposing a man had, what would you do ?—If the language was very bad, either he would go out of the service or I would.

148. Would you not report to the Head Office ?—First of all I would suspend him, and then report to the Head Office.

149. Do you think there would be any difficulty in getting rid of a man who was reported for an offence of that nature ?—I should not think so.

JOHN FRANCIS MCCARTHY examined. (No. 5.)

1. *Mr. Beattie.*] What is your position at the present time ?—Workshops Manager at Newmarket Railway Workshops, Auckland.

2. How long were you Workshops Manager at Addington ?—I took charge of Addington in April, 1901, and left in December, 1907.

3. What is your opinion regarding the allegation of loafing at Addington ?—That charge never could be sustained during the time I was Workshops Manager. I am certain of that.

4. What experience have you had ?—I have had experience on marine work, sawmill work, sugar-refinery—in fact, everything connected with an engineer's shop, both in Australia and in New Zealand.

5. How long have you been in the service ?—The last time I joined was in 1884 ; but I had, prior to that, been about two and a half or three years in the service.

6. You know Newmarket, Petone, and Addington Workshops ?—I have had charge of the three shops.

7. From your knowledge, have you any reason to suppose that the Addington workmen are less efficient than the workmen in any other shop of your acquaintance ?—I think they are more efficient than those either at Newmarket or at Petone, for the reason that the men at either of the two last-mentioned places do not get the same experience in regard to new work that the men at Addington do. If a man works here at Addington for ten years he must be a far better man than could be turned out at Petone or Newmarket—that is, a man who has been on the new work. As a matter of fact, we send men from Newmarket to Addington to get experience.

8. You refute the suggestion that the Addington men are addicted to loafing ?—There is nothing in it.

9. In your experience I suppose you have seen men in private shops take advantage of an opportunity to talk to each other ?—Yes.

10. Does Addington compare favourably with any private shop you have knowledge of ?—Yes. If Addington had belonged to me while I was there I could not have got another pound of work out of the men.

11. You were quite satisfied with the men while you were there ?—Yes, they surprised me. At times it looked an impossibility to get the work done, and they did more work than I thought was possible for men to do.

12. What is your opinion with regard to the plant and appliances generally at Addington ?—There is not the slightest doubt that there is some very fine machinery at Addington, but the shop is not up to date in every respect.

13. What about the overhead cranes ?—They are not satisfactory.

14. Would electric appliances be better ?—Yes, or even a rope gear.

15. Some time ago, on the Department's instruction, you went over to Australia ?—Yes.

16. During your visit what railway workshops did you see ?—Eveleigh Railway Workshops in New South Wales, Ipswich Workshops in Queensland, Islington Workshops in South Australia, and the Newport Shops in Victoria.

17. You saw the principal workshops of the four railway systems ?—Yes.

18. How did the industry and discipline of the men in those shops strike you as compared with Addington ?—There was only one shop in which I would say the industry and discipline compared favourably with our own.

19. With regard to the shop in which the industry and discipline compared favourably with Addington, was it better, or do you think it was equal ?—The system of work was much better, there is no doubt about that.

20. What do you mean by "the system" ?—In building locomotives they would not touch the work of erection until the whole of the sets were completed.

21. They built locomotives in sets of ten, I believe ?—Yes. I saw there lying on the floor of the erection-shop ten complete sets of frame-plates, ten sets of wheels, ten sets of cylinders, ten sets of cross-heads and motion-bars, ten sets of axle-boxes, and ten sets of Horn plates. They were all completely machined and lying on the floor waiting for the completion of one or two other sets before any start was made at all on the erection of the locomotives.

22. In your opinion it is quite impracticable to build locomotives to advantage unless you build them in sets of, say, ten or five ?—It is certainly a very great advantage.

23. To do that at Addington considerably more accommodation would be required ?—Yes. I suggested that they should be made in sets of five.

24. Does not the fact that you are carrying on urgent repairs often interfere with the progress of new work ?—Undoubtedly it does, and at Addington we have had to take all the men off the new work in order to push on with the repairs. Of course, repairs are kept up to date; the other was not. In this place I speak of in Australia repairs were sacrificed to new work. There were fifty locomotives waiting outside for repairs. They were giving preference to the new work just as we give preference to repairs here.

25. So far as your experience goes, you have nothing but good to say for the Addington men ?—That is so. I consider that as workmen they are excellent, and their conduct is highly satisfactory.

26. You heard the statement made yesterday about the less rate, and you think there is no ground for doubting the Addington men's industry and discipline ?—Not the slightest. The only trouble about Addington is that men interfere who have no right. They talk to the employees, and in that way upset the discipline and interfere with the shops. They really persuade the men that they have a grievance when all the time they have not.

27. You heard it stated yesterday that a certain large planing-machine just inside the machine-shop was unnecessary and largely useless: do you agree with that ?—No. It is capable of doing work equal to that of the best up-to-date machine you can import. It cuts both ways, and its cutting-power is equal to 40 ft. per minute. You do not want a very flash machine for heavy work.

28. You did all your staff matters through Mr. Jackson ?—Yes.

29. *The Chairman.*] When you were manager at Addington, was the staff system the same as mentioned by Mr. Jackson ?—Yes, and very unsatisfactory, too. It got so bad at the finish that, in order to minimise the delay, I used to send a man round with the letters to the men on the list, and he waited for the answer. Otherwise we were kept waiting months at times for the reply.

30. Did it ever become necessary for you to recommend the dismissal of men ?—I can hardly call to mind a case just now. We do not as a rule make a recommendation. We report them, and if the conduct warrants dismissal they are dismissed by the Head Office.

31. You found the conduct of the men at Addington in all respects good ?—Taken as a whole, yes.

32. But you think there was some prejudicial effect by interference from outsiders ?—Yes; any amount of false statements were made, and in due course these came on to me, and the men at the time got blamed for doing these things, whilst, as a matter of fact, they were innocent, and we had no means of finding out how it came about.

33. Do you mean that these outsiders came into the shops ?—No; they got information from the men in the shops, and used it.

34. You are not alluding to outside persons coming into the shops ?—No.

35. You have extensive experience of the shops outside of Addington, and have been at Newmarket. How do you find the desire to work on the part of the workmen at Addington compared with that shown by the men at Newmarket and the other shops of which you have experience ?—I think it is about similar. Newmarket always had a good name, and I think the same applies to Addington. I see no difference in them.

36. Do you consider that during your time the men at Addington, taken as a whole, were doing a fair day's work for a fair day's pay ?—I am quite satisfied in my own mind that they were.

WILLIAM VALLANCE MAUCHLIN examined. (No. 6.)

1. *Mr. Beattie.*] What is your present position ?—I am outside foreman for Messrs. P. and D. Duncan.

2. At one time did you work at Addington ?—I did.

3. In what capacity ?—As a casual fitter.

4. I am led to understand that you have expressed your willingness to give evidence as to what you saw when you worked there ?—That is so. In my opinion the average workman in the Addington Workshops is just about on a par with the average workman in contracting shops as regards intelligence, experience, and ability.

5. And with regard to this charge which you may have seen in the newspapers as to their being addicted to loafing, does your experience support or refute that ?—I do not think there is any more idling of time taking place in the Government than would take place in the average outside workshop.

6. Did you find the discipline good while you were there ?—I think the discipline in the Addington Workshops is, if anything, rather more severe than it is in outside shops.

7. And, generally speaking, you would agree that the charge that has been made against the Addington Workshop men of loafing is unfounded ?—Well, one might qualify that to a certain extent, because you are asking me questions, I take it, with reference to the general run of the shop, not of particular individuals. I do not think there is a great deal of difference between the average workmen there and the average workmen anywhere else. In my experience there is practically no difference. With the keener discipline the likelihood of any slackness on the part of the men is discounted to a very great extent.

8. Can you say anything of your own knowledge as to the quality of the work and the workmanship at Addington ?—The quality of the work turned out is first-class.

9. Was the output of the work satisfactory from your point of view ?—I am not in a position to state whether the output right through was up to contractors' standard, but in my opinion the methods of work in the Addington Workshops—mixing repairs with new work—adds necessarily to the cost. Very frequently a man has to lay down a piece of new work in order to go on with a hurry repair job, and consequently there is a loss of time in changing his machine and tools.

10. You have had experience elsewhere as well as at Addington. Taking the plant generally, so far as your knowledge of it is concerned, what would you say of it ?—I should say it was fairly up to date. You have, of course, machines that are somewhat obsolete, but it is not good policy on the part of a manufacturer to throw out a machine that is obsolete because there is something better in the market, provided the obsolete machine can do certain portions of the work.

11. In other words, I gather that if the work is distributed as suitably as possible amongst the various machines you would think the result would be satisfactory ?—Quite.

12. *The Chairman.*] Have you noticed any loafing at Addington ?—Yes.

13. Have you noticed any more loafing at Addington than you have noticed in private shops ?—No, about the same proportion.

14. You spoke just now of the changing from new work to repair-work, and *vice versa*. During your time was this often the case ?—Very frequently.

15. How many times a day or week did such changing come under your personal notice ?—With some of the men it would, of course, be pretty frequent, whilst other men were not changed at all. It is rather a difficult matter to say how many times per day or week any individual man or set of men would be changed, but the fact remains there were changes.

16. You cannot give any idea as to how frequent these changes were ?—At some seasons of the year they would be more frequent than others. For instance, just immediately before, say, Carnival Week, the majority of the men would be taken off new work and put on to repairs, to get all the gear and engines that they could out on to the road for the holidays.

17. You do not wish to convey the impression that men were repeatedly changed, but only that when a press of repair-work came in because of holidays or other exigencies of railway work ?—I may have led you to misunderstand me, but in answer to Mr. Beattie's question I was really answering him on the point as to whether the workshop was being conducted on good paying-lines.

18. Were these changes carried out with apparently little object, or were they changes necessitated by the fact that stock had to be got out in a hurry to meet the requirements of traffic ?—These changes came about owing to the peculiar exigencies of the service.

19. *Mr. Roberts.*] Have you noticed any difference in the output of the machines in the shop you are in now compared with similar machines at Addington ? Are they driven harder in the private shops than at Addington—is there more got out of similar machines ?—I do not think any more is got out of similar machines, but in the Addington Workshops they have machinery that you will not find in any other shop, in Christchurch at all events. But for machines of a light capacity I think the men who are employed at the machines in Addington get as much out of them as do any men employed in any of the local shops.

20. Doing a similar class of work ?—Yes.

RICHARD EDWARD ROBERTSON examined. (No. 7.)

1. *Mr. Beattie.*] What is your present position ?—I am brake-inspector for the Westinghouse Brake Company. I travel all over New Zealand in the interests of the company, and to assist the Railway Department on air-brake matters.

2. Your services are entirely paid for by your company, I believe ?—Yes.

3. Are you in any way under the direction of the New Zealand Railway officers ?—None whatever.

4. You are here in the interests of your company, and in the interests of keeping up the brake from your company's standpoint ?—Yes.

5. Do you recollect a contract being entered into between the Westinghouse Brake Company and the New Zealand Government Railways for the equipment of the Hurunui–Bluff Railway stock ?—Yes.

6. Were you in charge of that equipment ?—Yes, the whole time—about three years.

7. And, of course, on behalf of your company ?—Yes.

8. Where was the equipment done ?—At Addington Workshops.

9. During that three years you have had free access, I presume, to all the workshops ?—Yes.

10. Did you have opportunities of observing as a practical man the work that was going on ?—Every opportunity.

11. What has your practical experience been generally ?—I worked for many years in Sydney in the large engineering-shops. I have been with the Westinghouse Brake Company about sixteen years

now, and I was about four years on the New South Wales railways, equipping the railway stock; three years on the Queensland railways; and I was two years in the Petone Workshop, twelve months in Auckland, and three years in the Addington Shops.

12. Are you aware that certain charges have been made against the Addington Workshop employees?—I saw the report in the paper.

13. And you volunteered to give evidence from your own observation and knowledge?—Yes.

14. What did you see at Addington?—I have had nearly thirty-four years' experience in railway and contract shops, and I have taken special note, especially on the railways, being so many years connected directly with railway work. I think the men in the Railway Workshops, especially in New Zealand, and Addington in particular, compare more than favourably with the outside shops. I know that Mr. Jackson is very strict, and looks very well after the men. The class of work, so far as I could see, was very good, and the men generally worked very well. There may be a certain number of men at Addington who loaf, but you will find that in every shop. On the contracts I have had charge of, though I watched the men very closely, still there is a certain class of men who will loaf if they get a chance. Addington is no worse than any other workshop. On the contracts I have always been pleased to engage railwaymen. In fact, I give preference on many occasions to men who have left the Railway service. I find them in every case good workers—very willing workers. They do not need to be watched either.

15. From your own observation can you say anything about the supervision on the part of the foremen and Workshops Manager at Addington?—Mr. McCarthy was Workshops Manager when I was in Addington, and I should be very sorry for any of the men he caught loafing. I know, as far as I could see, there was very little loafing in Addington in my time.

16. Did the foremen seem to be diligent in their supervision?—Yes, so far as I could see or understand.

17. Did you notice the discipline of the shop generally.?—It was very good.

18. With your knowledge of outside contract shops and other railway shops, and with your knowledge of the work being done at Addington during the time you were there, can you give any idea of the efficiency of the plant generally at Addington?—I think it was very fair. There is some very good machinery there. Some of it may be a little old, but if even it is a trifle old it is still useful so far as I could see. They have got a very fine pneumatic plant at Addington, and I do not think there is anything like it in any other shop in the Dominion. I am specially interested in the pneumatic tools, particularly the labour-saving tools, and I am nearly sure that Addington has the largest compressor of any workshop in the Dominion. I think I was the first in New Zealand to introduce the American pneumatic tools, and Addington has a very fine stock of pneumatic tools.

19. It has been stated by a witness who seems to have had more or less the run of Addington Workshops that he did not see any pneumatic hoists. Can you suggest why he did not see them?—They are both inside and outside. I know that before Mr. McCarthy left he had some very fine pneumatic hoists for removing rails both inside and outside the shops. I travel over the whole of the New Zealand railways, and visit every Railway Workshop, and they have pneumatic plants in Auckland, Napier, East Town, Petone, Addington, Hillside, and Invercargill. I think the railways are very well up to date so far as pneumatic appliances are concerned.

20. In running your contract for the company, did you yourself engage all your staff?—I have full control either to engage or dismiss at a moment's notice, subject, of course, to the Arbitration Court in the matter of dismissing.

21. You have not any difficulty in enforcing discipline?—None whatever.

22. You have no difficulty in getting the work out?—No. I was continually on the spot.

23. With regard to Addington, you think the allegation of loafing is unwarranted?—It is not true.

24. *The Chairman.*] Have you had experience in English and American shops?—I was eight years and a half with the North-eastern Railway Company, England, and I have had twenty-six years' experience in the colonies.

25. Compare the methods as they were when you were with the North-eastern Railway Company with the methods of this day at Addington—what is your opinion of the relative efficiency of the two?—I say Addington is the better.

26. How many years is it since you left the North-eastern?—Twenty-six years. There have been many changes in that time.

27. It has been stated that the hands of the foremen at Addington are somewhat tied—that they have not real power over the men. Do you consider that to be the case?—I could not say anything about that. I do not know anything about the official matters.

28. Do you consider the system at Addington such as will result in the maximum amount of work being turned out?—I think the Manager or the Engineer should have full power to discharge or employ as he likes. I have that power on the contracts, and that is why they are carried out so well.

GEORGE BROOKS examined. (No. 8.)

1. *Mr. Beattie.*] What is your position?—I am Workshops Foreman at Petone Railway Workshops.

2. How long have you been in the service?—With one break, about twenty-seven years.

3. I understand you can give some evidence as to a conversation which took place in your presence between Mr. Jenkinson, Foreman Forbes, and yourself?—Yes. I cannot remember the exact date, but it was the day prior to the publication of Mr. Ronayne's memorandum. That would be about the 19th January. I went into the machine-shop, and Mr. Jenkinson and Mr. Forbes were talking together. Mr. Forbes introduced me to Mr. Jenkinson, and I passed a jocular remark as to whether he was looking for a job, and he said he was not. Mr. Jenkinson said, "You seem to be pretty busy";

and I said, " Yes, there is always plenty of work at Petone." He made the remark, " I have just been down South." Mr. Forbes asked him how things were down there, and Mr. Jenkinson replied that things were in a very bad way. He said, " They appear to be taking things very easy, and it is not the shop it was when you and I were there about fifteen years ago." We went on talking on general topics, and with that he simply said, " Well, I must be getting along," and shook hands with Mr. Forbes and myself and left.

4. Did Mr. Jenkinson make any remark, either jocular or otherwise, about his intention of shaking up Addington, or anything of that sort, in your hearing ?—No.

5. *Mr. Hampton.*] When you saw Mr. Ronayne's letter in the newspaper the next day, did it occur to you who the " expert engineer " might be ?—Yes.

6. Who ?—The Hon. Mr. Jenkinson.

7. What led you to that conclusion ?—By the manner in which he took stock of the shop.

8. The sentiments which were contained in Mr. Ronayne's communication and put down to an " expert engineer " were identical practically with the remarks made to you by Mr. Jenkinson ?—Yes, that is so.

GEORGE SCOTT examined. (No. 9.)

1. *Mr. Beattie.*] You are an engineer in practice in Christchurch as a foundry-proprietor ?—Yes.

2. You, of course, are a gentleman of very large experience in engineering matters ?—Yes.

3. You have some knowledge of the Addington Workshops and the plant there, and the class of work turned out at the Addington Workshops, including what you would see at the Exhibition ?—That is so.

4. With regard to the workmanship of the work turned out at Addington, what is your opinion of it ?—I may say, in reference to the boiler-work turned out at Addington, that I think it is of the very highest quality. I have examined quite a number of the boilers turned out there—I have not examined them in the shops themselves, but in the railway-trucks when ready for sending away to Wellington—and I have always remarked that the quality of the work turned out at Addington Workshops was far better than what is turned out at Home. I may say that I know what is turned out in the Midland Railway Workshops. I have been through that establishment, and know a great deal of the work that is carried on there. I have also been through the Baldwin Locomotive Works, and I must say that I do not think the work turned out by the Baldwin Locomotive people, or the firms at Home, would equal the quality of the work turned out at Addington Railway Workshops. Of course, we know that the Addington people are handicapped to a certain extent with the machinery and appliances that they have, and, if I may be allowed to state my opinion, I think the time has now arrived when complete new shops should be erected. I do not think it is so much the fault of the men or the plant they have there as of the workshops themselves. I think both new shops and fresh appliances are required. These shops have now been in existence for thirty years or more, and, as we all know, in the colonial shops it is a matter of additions from year to year. One machine is put down in one corner, where room is made for it; and next year another machine is got in, and it has to be crammed into another corner. These shops have been there long enough, and in the interests of the Dominion it is time that new shops were erected. I may say that we ourselves have experienced that necessity. We had very good shops built thirty-odd years ago, but of late years we found those old shops quite inadequate and quite out of date; and within the last two years, to bring our shops up to date, we spent between £20,000 and £30,000, and I think the time has now arrived when the Government should do the same. A great deal has been said about modern machines, but I think it would be a great mistake for the Government to go in for a large expenditure in putting down a modern plant in these buildings. Buildings of a more secure and fireproof nature should be erected. In reference to Mr. Henderson, I do not know him personally, but I may say I have always heard him spoken of in the very highest terms as being a man who uses tact in managing his men, and as a first-class tradesman.

5. On any of your visits to Addington has it occurred to you that the men were doing what has been termed by some one " a Government stroke," or, in other words, were working below their normal speed ?—No, such never occurred to me; but I have thought, in going through the shops, that you could not get the maximum of work out of the men because the works were unsuitable for it.

6. For that you would not blame the men ?—Not at all. I think they are doing all they possibly can with the shops they have.

7. *The Chairman.*] What would you say with regard to the system of appointment in the Government works, whereby neither the foreman nor the Locomotive Engineer has direct power to appoint or dismiss men ?—I certainly think that the man in charge should have power to suspend a man, but I do not know that it would be safe to give him power to dismiss the man. I think, though, they should have some power other than they have. You always find, when you get a number of young fellows in the shop, and they realise that the foreman has no power to discharge or suspend them, that they take advantage of it.

8. Do you not think that the Railway Appeal Board which is constituted by Act of Parliament is a sufficient tribunal to insure justice being done ?—That method is too cumbersome. It takes too long to get at it. You should be able to deal with a man who is suspended within a week. The foreman should have power to suspend, and then, I think, the Mechanical Superintendent should have power straight away to discharge that man.

9. *Mr. Roberts.*] In making up the cost of your work, what would you consider a fair allowance to make for the expenses of management and upkeep of the shop generally before you added on your profit ? What do you consider a fair percentage to add on to the actual cost of labour and material to cover the fixed charges of management, power, depreciation, &c. ?—That is an item that varies very much in the different shops, but I should say that at the Addington Shop it would possibly be 28 per cent.

JOHN HERBERT FOX examined. (No. 10.)

1. *Mr. Beattie.*] What is your position ?—Locomotive Engineer.

2. How many years have you been in the service ?—Just over twenty-seven years.

3. During the Christmas and New Year holidays were you relieving Mr. Jackson at Addington as Locomotive Engineer ?—I was.

4. Were you there when the letter written by Mr. Ronayne was sent down ?—I was away at the time it was received, but I came back a few days afterwards.

5. Was it dealt with in your absence in any way ?—No, it was locked up.

6. You dealt with it on your return ?—Yes.

7. Will you explain what action you took ?—When my attention was called to it, I took it over to the Workshops Manager and read it over to him, and also to three of the principal foremen who were called in. I said it was a very serious charge to make against the workshops, and we should have to go into it fully. I told the Workshops Manager I should write to him asking him for a report, and also for the explanation of the different foremen. I also sent the Manager a copy of the letter. I received reports from the Workshops Manager and his foremen, and replied to Wellington.

8. Will you look at these reports and say if they are true copies of your own report, together with the reports of the Workshops Manager and the various foremen under him ?—If my memory serves me, they are the exact copies of the reports I sent forward. [Copies of reports put in.]

9. As a result of your inquiries, which I presume were made in a searching way, did you find any substantiation of the charges made in that letter ?—Not the slightest.

10. Have you a knowledge of the staff of the other Railway Workshops ?—Yes, I have had charge of most of them from time to time. I am relieving Locomotive Engineer, and in that capacity have to relieve the Locomotive Engineers and also the principal workshops officers.

11. Therefore your experience leads you all over the colony, and into intimate relationship with the various workshops ?—That is so.

12. And you claim, I presume, that you are in a position to judge as between the various workshops ?—Quite so.

13. Will you explain your conscientious opinion as to the discipline and the diligence and work generally at Addington ?—I think it compares most favourably with any other Railway Workshop in the colony, and also with any private shops I have had occasion to visit on departmental business. The quality of the work at Addington compares most favourably with any other I have seen, imported or otherwise.

14. Have you experienced any difficulty in maintaining discipline at Addington or elsewhere ?—No. In none of the workshops have I had any trouble at all.

15. Beyond isolated cases of individual men, have you any reason to suppose that there is systematic loafing in any of the workshops ?—I am quite satisfied it does not exist, as I have said in my reports.

16. The question has been raised as to there being room for improvement in the system of appointing and discharging staff, more particularly the casual staff ?—I think there is room for improvement.

17. What is your idea as to the lines the improvement should take ?—With regard to engagements I think the Workshops Manager ought to be allowed to engage hands and pay them off when they have done with them, selecting the most suitable.

18. That, of course, refers more particularly, I take it, to the casual staff ?—Oh, yes! I have seen many cases of great delay caused by the present system. Names are sent down, and it has not been possible to find some of the men. An unsuitable man has been started, and after trial had to be paid off. Then there is further delay before other names are received. The list of names you get is taken consecutively. We were instructed to give the man whose name was first on the list the first trial, and we had to wait to hear from him. Very often a delay of weeks occurs. The man might even be out of the colony.

19. You think that in the interests of the shops the Workshops Manager should have power to take on and put off staff ?—I am quite sure.

20. How long is it since you relieved at Hillside ?—Four months ago.

21. What is your opinion as to discipline at Hillside as compared with Addington ?—I do not think it was any better. It is the same in both workshops.

22. Do you consider both workshops are efficient in that respect ?—Yes; there is no difficulty in maintaining discipline at Hillside or Addington.

23. And each compares with the other ?—I think so.

24. When this letter arrived, and you laid it before your officers, did it cause a considerable amount of vexation ?—They were very much upset that such a charge should be made.

25. And, of course, their reports you sent on in due course ?—Yes, and in those reports they demanded an inquiry to clear them, as they were quite sure the charges were not true.

26. You have been in charge of Auckland as Locomotive Engineer ?—Yes

27. Will you state your opinion as regards the Newmarket Shops comparatively ?—I do not consider them any better than Addington. The men work about as hard.

28. Are all the workshops working to a similar standard as regards new work ?—They all work to standard drawings.

29. Are they all doing this standard work equally efficiently and equally well ?—Yes.

30. With regard to the plant and appliances at Addington, bearing in mind the class of work they are doing, will you state what you think of the plant and appliances generally ?—I think they are very good. One or two improvements could be made for lifting heavy weights. There should be electric hoists, but for small lifts the pneumatic hoists are suitable.

31. From your knowledge of the various workshops, are you in a position to say that the output of the various classes of work at Addington is what might be expected ?—I think it is.

32. Do you know that the work has to be changed frequently on account of the urgent state of affairs ?—Yes.

33. That applies to all the Railway Workshops ?—Yes ; before all important holidays.

34. When you were at Addington did you notice any lack of hydraulic power ?—No, and my attention has not been called to it on any occasion when in charge at Addington.

35. From your own observation, did you find the foremen at Addington thoroughly diligent in the execution of their duties ?—Yes.

36. And thoroughly efficient in the matter of the supervision of the workmen ?—Yes.

37. You had some opportunity of judging with regard to the boiler-shop. Mr. Jenkinson said that another leading hand was required. Did it strike you that this was so ?—No. If it had I would have made a recommendation. I did not consider it necessary.

38. I suppose you did not see Mr. Jenkinson when he went round ?—It was before I went down, I believe. So far as I know he was not round while I was there.

39. Did you, while you were at Addington, hear anything about the workmen being insubordinate or uncivil to their foremen ?—Nothing of the kind.

40. Had such happened you would have dealt with it ?—At once. I may say such a state of things does not exist.

41. You cannot, I suppose, tell us anything about the number of rivets per day put in by the riveter ?—No, I did not take any notice.

42. *The Chairman.*] Have you ever had experience in any shops outside of New Zealand ?—No.

43. Have you visited any shops outside of New Zealand ?—No, I have never been outside the Dominion.

44. Your experience is confined to the Railway shops in New Zealand ?—Yes.

45. Have you had experience in private shops ?—Only as a visitor.

46. So that your statements as to the efficiency and speed with which work is done are based on your observations in the Railway shops of New Zealand alone ?—Yes, very largely ; but, of course, when visiting other shops, I have kept my eyes open. I believe our shops compare favourably with any shops I have visited in New Zealand.

47. What would you consider a fair day's work on locomotive-boiler work for a riveter such as they have at Addington ?—I should say about two hundred with the present appliances.

48. Do you consider that the lifting-appliances at Addington are defective ?—For heavy lifts ; but for light lifts they are good.

49. By "heavy lifts" you mean overhead travellers ?—Yes, and the crane for the hydraulic riveter.

50. What is the speed of travelling of the overhead cranes ?—I have not timed them, but they are very slow.

51. You think electric cranes should be substituted ?—Yes.

52. What speed should they have ?—I could not say offhand, but I should say ten times that of the present ones.

53. Have you any experience of electric cranes ?—No ; but I have read some of the catalogues regarding them.

54. Can you give us any idea as to how many times a day these overhead cranes are in use ?—Sometimes they are in use a good portion of the day, especially when rushing out rolling-stock just before the holidays, and in lifting boilers and cabs into place on the engines. Previous to those times they may stand for some days and not be used.

55. What would you put down as the average number of lifts that these overhead travellers have to make in a day, taking the year through ?—I should say half a dozen lifts a day on the average.

56. *Mr. Hampton.*] You are quite certain that in the various places you have been stationed at you have found no difficulty in enforcing discipline ?—Yes.

57. You do not think, then, that the Classification Act, which gives the men the right of appeal, in any way militates against the enforcement of discipline ?—No, I cannot say I do think so.

58. Do you consider that the men show any disposition to take any undue advantage of the measure of security which that Act gives them ?—I do not.

JOHN ANDERSON examined. (No. 11.)

1. *Mr. Beattie.*] You are an engineer and member of the firm of John Anderson (Limited) ?—Yes.

2. Have you from time to time visited Addington Workshops ?—I have visited them occasionally.

3. You have opportunities, I take it, of assessing the class of work turned out ?—Yes.

4. What is your opinion of the work done on the Exhibition engine, &c. ?—Excellent. It could not be much better. I have no great knowledge of what goes through Addington, but occasionally we ask Addington to do work that is beyond our plant, and when such work has been turned out for us it has been highly satisfactory. Otherwise my observations of the work going on at Addington are very casual. I have seen their work on the trains, and have examined with a critical eye as a sort of comparison with our own, and I must say I have always found the Addington boiler-work excellent. That is practically all I know.

5. What about the work exhibited at the Exhibition ?—Oh ! that was excellent. But, of course, you must remember that the Exhibition exhibit was a special effort. Occasionally we ask sometimes to get a forging from their big hammer, and that work is always turned out very well indeed.

6. *The Chairman.*] I think you said that you had no special knowledge of the internal working of Addington ?—That is so.

7. The question has arisen as to what is considered in this country a fair percentage to add to the cost of labour and material for general engineering work, to cover fixed charges such as foremen's wages, cost of fuel, upkeep of plant and machinery and buildings, interest, and depreciation. Do you feel inclined to give the Commission any idea of what you consider a fair charge ?—That is a very difficult question. It depends on what you do put down as working-charges. If you propose to carry the whole thing, supervision, depreciation, interest, rent, and everything of that kind, I will tell you this much: that, frankly, the Home people showed me their books without hesitation, and in most cases it was close on 100 per cent. That was arrived at from the actual working every year. Year by year they took out the actual cost.

8. That is exclusive of profit ?—That is exclusive of profit altogether. I do not say that is for New Zealand. I am not going to commit myself there.

9. You evidently would consider 15 per cent. a small charge ?—It is absurd. It would not look at it. That is my own experience.

10. *Mr. Niven.*] Could you give us any idea of what you consider a fair day's work for the hydraulic riveter under fair conditions on shell-work ?—That has got to be very tightly riveted, and some may have to be cut out. Of course, in girder-work we get a good number in. I would not like to say what would be a fair number. It depends very much on the condition of the machine and the experience and knowledge of the men, and then you may have to cut out so many rivets. It also depends on the character of the building.

11. *Mr. Roberts.*] Can you give any idea of the average number of rivets that should be put in on a boiler ?—I would not like to say. If you are on a shell you may, with a good run up and down, do a fair amount, but when you come to fire-boxes and other parts it is a very difficult thing to make an estimate. I should not like to commit myself. I know from memory to a certain extent, but I would not like to trust to memory.

12. *Mr. Hampton.*] Under certain conditions, and on certain classes of work, five minutes per rivet would not be too long ?—I would not like to say that. I think I should take exception to the five minutes.

MYRON ALVA WELSH examined. (No. 12.)

1. *Mr. Beattie.*] What are you ?—I am a blacksmith employed at Addington Workshops.

2. You have volunteered to give certain evidence based on your experience at Addington and in other countries. How long have you been at Addington ?—About twenty months.

3. In what other countries have you worked ?—I have worked in America, in the Philippine Islands, I have had a look through England, and through Germany as a blacksmith.

4. *The Chairman.*] Working your way, or as a visitor ?—Through England and Germany I was sent by the Pittsburg Locomotive Works to gain knowledge for the benefit of the shop. I have seen shops where the division of labour was much keener than at the Addington Workshops; but, taking Addington Workshops as they are, with their conveniences, they do as well as any place I have been in.

5. *Mr. Beattie.*] It has been suggested that in the Addington blacksmiths' shop the work was very much of a "Government stroke" nature. Can you tell us anything as to that ?—Well, I cannot find much opportunity for what you term "Government stroke." I have been in shops where there has been more fuss made, but they were only making a fuss and were not doing the work.

6. Are you prepared to express an opinion as to the suggestion that the smiths' shop is working at a less rate as regards energy than it should ? Are the men loafing to any extent ?—Not more than you will find in any other place. I can honestly say that they work better out there than in many places I have been in. They do not need to be driven. It seems to me that they have better discipline. The man who has control seems to have more power over his men. There is remarkable harmony and peace, and the men do not need any driving. Whilst I have been in many shops, in the smiths' shop at Addington there is more harmony among the men than in any shop I was ever in.

7. You think that is all conducive to getting the work out ?—I have had a little experience in foremanising smiths' shops, and to my mind harmony is the important thing.

8. We may take it then that, in your opinion, the men in the smiths' shop at Addington are doing a fair day's work for a fair day's wage ?—Yes. Mr. Scott opened the subject up. It is not so much the men as it is the shop, and Addington is not any worse off than any other shop. It may be that it is because I am a smith, but it seems to me that a smiths' shop is the last place in the world to grow. The smiths' shop never keeps pace with the rolling-stock.

9. Is that at Addington or elsewhere ?—Anywhere. Take the locomotives that you have to-day compared with those of ten years ago, how much improvement has there been in the blacksmiths' shop ? Many pieces that we make we have to take outside to turn round. That is not the fault of the men or the foreman.

10. That is a remark that is applicable to smiths' shops generally ?—Yes.

11. The smiths' shop is allowed rather to be forgotten ?—It seems to be on the tail end.

12. *The Chairman.*] Have you considered the energy shown by the men in the Addington smiths' shop as to how it compares with that shown in the American locomotive shops ?—I have to say that they just work as well—that is, not considering piecework shops, of course.

13. What is the ratio in energy exhibited at Addington as compared with American piecework shops ?—They are not in it.

14. How do the ordinary American day-work shops compare with piecework shops ?—They are not in it.

15. The ratio is about the same ?—Yes.

16. *Mr. Roberts.*] In what respect do you consider Addington is behind in the matter of appliances ?—It is not so much the appliances as the arrangement—in other words, the floor-plan.

17. There is not enough room ?—That is so.

18. Are there sufficient steam-hammers ?—No. To my mind, to work blacksmiths to advantage, four men can keep a steam-hammer going.

19. How many steam-hammers are there ?—Five, I think, in the smiths' shop.

20. How many men are there ?—Thirty-three.

21. Have you any experience in stamping articles ?—Yes.

22. Is there anything done at Addington at that ?—Yes.

23. Is there a special steam stamping-appliance ?—They have not a special plant, but they stamp as well as they can with the steam-hammer.

24. Do you consider that Addington is behind other shops in the matter of these appliances ?—Yes, they are much behind; but there are other things to consider in that connection. It would not pay New Zealand to put in a modern "bull-dozer"; there would not be enough work to keep it busy.

25. There must be a good deal of repetition work in Addington ?—Oh, yes!

26. Do you consider an improvement would be made if they had proper drop-hammers ?—Yes. I would not say that you should get a modern "bull-dozer," because it would not pay to set that machine up for less than work running into seven or eight thousand pieces.

JAMES THOMAS HENDERSON, Foreman Boilermaker at Addington Workshops, examined. (No. 13.)

1. *Mr. Beattie.*] How long have you been in the Railway service ?—About twenty-three years.

2. How long have you been foreman boilermaker at Addington ?—About thirteen or fourteen years.

3. At Addington do you build practically all the boilers for the New Zealand Railways ?—All the locomotive-boilers.

4. You are aware that a statement was made in a letter that the work in the boiler-shop at Addington was inefficient ?—Yes.

5. What do you wish to say on that point ?—I wish to deny it entirely. It is a false charge, without doubt.

6. Do you find any difficulty in enforcing discipline in the boiler-shop ?—No.

7. Have you had insubordination or anything of that sort at any time ?—No, I have not.

8. I suppose you would know what to do if you did ?—I should, certainly.

9. You practically deny the truth of the statement with regard to any slackness in the boiler-shop ?—I do.

10. Do you recollect Mr. Jenkinson visiting the Addington Workshops last November ?—Yes.

11. Were you there ?—I was.

12. Was it during Carnival Week ?—Yes, when the shops were not working.

13. The boiler-shop machinery was not working ?—No machinery was going at all. We were only doing repairs.

14. On that occasion, of course, very few men would be there, I suppose ?—Very few.

15. Will you tell the Commission what transpired on the occasion of Mr. Jenkinson's visit ?—We walked round the shop and looked at the work that was going on in connection with the cutting of the curvature of the cone for the barrels of the X locomotive-boilers. We walked from there round to the rollers, and talked about the rolling of the plates. I said we had a pretty tough job. He said, "You ought to have rolled the plates." I said, "Should we! If you had been at Stevenson and Cook's and seen them rolling them you would not have that opinion."

16. With regard to Stevenson and Cook's, that was where we got them rolled ?—Yes.

17. Stevenson and Cook undertook to do them at a price ?—Yes.

18. Stevenson and Cook found the work a bigger job than they anticipated ?—On doing the first plate Mr. Cook came to me and said, "I do not think we are going to make much out of this job, Mr. Henderson." I said, "You will get on better as you go on," and that was so. The first took twelve hours.

19. Are Stevenson and Cook's rollers much more powerful than ours ?—Yes. Their top roller is 18 in. in diameter and 18 ft. between the standards.

20. To come back to Mr. Jenkinson, you questioned his knowledge as to saying that you ought to have done this work at Addington, and you instanced the fact that Stevenson and Cook had found the work a big proposition ?—Yes.

21. What transpired then ?—I do not think there was anything of consequence that I can recollect. It ended up in a general talk.

22. Was there any disagreeableness of any kind ? Had the matter left any lack of the same friendly feeling that had existed between you before ?—I could not judge that. As far as I can judge, I should not say so.

23. It did not affect your feelings ?—Not in any way.

24. Have you known Mr. Jenkinson fairly intimately for a number of years ?—Yes, I have known him intimately for some thirty-five years.

25. He has gone round your shop at Addington from time to time ?—I should judge that he generally comes down about twice a year.

26. On any of these visits has he, as a friend of yours and as a "brother chip," so to speak, called your attention to any loafing, or what he thought was loafing ?—Never.

27. He has never suggested that your men were taking advantage of you in any way whatever ?—No.

28. He had not suggested that up to the last time you had a conversation with him ?—No.

29. Have you any explanation to offer as to why he should make this statement about your men loafing ?—No, I cannot fathom it at all.

30. Has there been any unpleasantness between any members of your respective families ?—None whatever.

31. Has Mr. Jenkinson at any time found fault with your plant to you ?—No. Some years ago he remarked to me that he was urging the General Manager to get a hydraulic flanging plant: that is all that has ever taken place between us with regard to the machinery.

32. He did not discuss anything about the number of rivets you were putting in with the hydraulic riveter ?—No; he never made any remark about the riveter at all. In fact, during that week the riveter was not in operation.

33. Do you recollect if Mr. Jenkinson visited the Workshops after Carnival Week or about the New Year ?—I was told he visited the Workshops on the morning of Monday, the 16th November. That was the day we resumed work after Carnival Week.

34. Can you say whether the hydraulic riveter was at work on that particular Monday morning ?—It was.

35. Were you away on holiday at the time ?—No, I was on duty; but I am not clear as to whether I had not been called down to the local running department just at that particular time.

36. You were on duty, but did not happen to see Mr. Jenkinson ?—That is so.

37. With regard to that hydraulic riveter, how many $1\frac{7}{8}$ in. rivets should the machine be able to put in in an ordinary day ?—Well, working on the barrel, we ought to put in about two hundred.

38. Have you ever timed the period between the closing of the rivet and the release of the pressure ?—I told the men to count fifteen, and then release the pressure.

39. Is it possible on any work that you might take five minutes, as alleged, per rivet: have you any knowledge of that ?—No, and I do not think it did take five minutes.

40. You will admit that there are places where there is some difficulty in getting the rivet home ?—I take the average on a job from the time it is put on till it is finished.

41. Two hundred rivets a day includes all the awkward rivets as well as the straightforward ones ?—Yes.

42. Have you yourself taken the time as between rivet and rivet ?—Yes.

43. What do you make it ?—You can put in about four a minute—not on boiler-work, though.

44. Have you timed them ?—Yes. Take a firebox, where the work is not so particular, they run them in at about one for every thirty seconds.

45. There has been a reference made to the overhead lifting-winch you have there. Do you consider it would be a very great advantage to you if that were driven electrically or otherwise ?—Very much so. Hydraulic, I should say. As far as I can understand, the latest plant they have over in New South Wales is hydraulic, which is more under the command of the operator.

46. Mr. Jenkinson yesterday made some reference to the machinery going very slowly when he was there the last time—that would be on the Monday you spoke of; and he suggested that there was a want of pressure. Have you any explanation of that ?—The working of the machines dependent upon one accumulator must, of course, be largely regulated by the pressure, which is dependent on the number of machines operating at the given moment.

47. It is quite possible, then, for the apparatus to momentarily run out of power ?—That is so.

48. That does not occur so frequently as to cause any considerable loss of time or trouble ?—No.

49. Speaking generally, does that hydraulic plant work satisfactorily ?—Yes.

50. Of course, if kept in repair ?—Yes.

51. When in good repair it answers your purpose ?—When the pump is in first-class order, yes.

52. With regard to your clerical work, do you find that your clerical work takes up too much of your time ?—It does take up a good deal. I would like, of course, to be able to spend more time in the shop.

53. Would it be possible to make more use of the Workshop clerk ?—Yes, it would be.

54. Could you get him, do you think ?—As a matter of fact, you have got to build up your replies to take them over to him to write them out, and there is the copying of them afterwards.

55. And you find it less trouble to do it yourself ?—That is so.

56. In what form could you get assistance that would be useful to you ?—It might be done in this way: Say there are five foremen, and the clerk's duties were so arranged that he could give one of us each a day. I think that would get over the difficulty.

57. How much of your time do you reckon is spent in the office per day ?—I should judge about three hours out of the eight. There is the initialling-up of the time-book; that has to be done every day.

58. How long would that take ?—About two hours.

59. You always do that yourself; the clerk could not do it for you ?—No, he is not allowed.

60. And the extra hour is devoted to such correspondence or papers as you may have ?—Yes.

61. Is the other plant, irrespective of the riveter, good and sufficient, or have you any remarks to make about it ?—If we had a flanging plant, and our punching and shearing machines were more modern, I think we should have everything we required.

62. And, of course, a power-lift for the riveter ?—Yes.

63. Your boiler-drilling, barrel-drilling, and firebox-drilling is satisfactory ?—Perfectly. There is nothing in Victoria or New South Wales to compete with them.

64. With regard to the Australian locomotive-shops, in what respect are they better equipped than we are at Addington ?—In respect to their flanging plant, I should say. That is all. And, of course, their overhead cranes are electrically driven.

65. I think you have been in the habit of keeping notes of the time and cost of the work going through your shop ?—Yes.

66. You have a knowledge of what work costs, and you have a pretty good knowledge of what each man is doing and is able to do ?—Yes.

67. Are you satisfied that the staff under you are doing a fair thing ?—I am quite satisfied that every man is doing his best. During the last twelve months they have had to go pretty fast.

68. Any imputation of idling is, in your opinion, then, quite unwarranted ?—That is so.

69. You are perfectly satisfied with your staff, and refute the suggestion that they are inefficient or idling ?—I do.

70. How many leading hands have you under you at the present time ?—One.

71. What is his name ?—Charles Earwaker.

72. What is your opinion with regard to additional leading hands in your shop ?—Now that we have got through the rush work, I do not think it is necessary to have another one. Of course, we have an additional leading hand on at night, but that is another shift.

MONDAY, 15TH MARCH, 1909.

JAMES THOMAS HENDERSON, Examination resumed. (No. 14.)

1. *Mr. Beattie.*] Can you tell us what percentage of rivets you usually reckon on having to cut out of boilers in the Addington Workshops with the hydraulic riveter ?—A very low percentage—perhaps one out of four or five hundred rivets. In a boiler sometimes we do not have to cut out any.

2. *The Chairman.*] What shop did you serve your time in ?—R. S. Sparrow, in Dunedin, and I finished with Morgan and Cable at Port Chalmers.

3. Have you worked in any shops out of the country ?—I started in the boiler establishment of the Risden Iron and Locomotive Works, San Francisco. After that I worked in Imry's at Port Chalmers, Kincaid and McQueen's at Dunedin, and then in the Government workshops.

4. You spoke of the Australian shops and what they were doing in some of the Australian boiler-shops. Do you speak of your own knowledge ?—Only as a casual visitor. During my annual leaves of 1907 and 1908 I visited Australian shops.

5. Were you sent on those visits or did you make them on your own initiative ?—I made them on my own initiative during my annual leave.

6. Do you find the boiler-shop at Addington too big for you to manage as foreman ?—No.

7. What is the clerical work which you have to do ?—There is the answering of correspondence; writing up the job tickets for material, picking it out from the drawings, and, of course, getting out the quantities; and initialling the time-books.

8. I think you said that initialling the time-books took you two hours a day ?—Yes.

9. You do not initial the time-books in the shop ?—No, in the office.

10. If you do this work in the office, what check have you that the time has been entered to the proper number by the men ?—Only from general observation.

11. From memory ?—That is all.

12. Have you never done this work in the shop as you went round ?—I did at one time, until the staff got too big.

13. You found you could not do it in the shop ?—Not now.

14. Have you any clerk or boy to assist you in the office ?—There is the clerk of the Workshops foremen, who is supposed to assist us. He is generally with the foreman fitter, and if I require anything I have to get him to come along and assist me.

15. He is shared out amongst the foremen ?—Yes.

16. And the foreman fitter has the best of him ?—I think so.

17. You spoke about some plates that you were not able to roll. What plates were those ?—They were cone plates for the barrels of these X boilers.

18. You were not able to roll them ?—In the first place, our rollers were not strong enough. We did roll one, and it broke up our gear.

19. How thick were those plates ?—Seven-eighths of an inch.

20. Were they exceptionally hard ?—No.

21. Did you roll them cold or with the chill off ?—Cold.

22. And you found the rollers would not roll them ?—We could have continued rolling them, but the time occupied in repairing the rollers would have been so great that it was not worth while.

23. Stevenson and Cook finally rolled them, and had some trouble ?—Yes, it took them twelve hours to do the first one, and to adjust the top roller they had to get seven or eight men on to the levers to obtain the required pressure.

24. These plates were $\frac{7}{8}$ in. thick, and not $1\frac{7}{8}$ in. ?—Yes.

25. What is the biggest barrel-plate you have rolled at Addington with the present plant ?—Three-quarters of an inch thick.

26. How long did it take ?—Two plates took four and a half hours, including putting them into the rolls and taking them out, and there was no trouble whatever.

27. Has each riveter its own accumulator?—No. Sometimes the four machines are working off the one accumulator.

28. Is that accumulator a specially large one, or is it simply the accumulator that came out with the riveter?—It is the original accumulator which we had.

29. It is intended for the riveter also?—It was originally got for the first fixed riveter.

30. And you have adapted it for other work since?—That is so.

31. You have no flanging plant at Addington?—No.

32. Is your flanging done by hand?—Yes.

33. Plate by plate?—Yes.

34. Reheating on the fire or furnace?—The furnace generally. If we have an awkward plate we have to do it locally, but generally out of the furnace.

35. Then back to the furnace again?—Yes, straightened, and then annealed.

36. Can you get them through on one heating by hand?—On certain plates you can, but with other plates you cannot.

37. What average number of rivets do you say you can put in with the present appliances?—Two hundred in eight hours.

38. That includes lifting, shifting, &c.?—Yes.

39. You also said that you had kept time-costs and also wages-costs of the various jobs?—Yes. [Statement of costs put in.]

40. *Mr. Roberts.*] These two plates that took four and a half hours to roll—were they the usual boiler-plates?—Yes.

41. Only one longitudinal seam?—Yes.

42. What was the size of the plate?—About 15 ft. long by over 9 ft. in width.

43. It was not a cone-plate, then?—Yes, the first of the cone.

44. I thought you could not roll these plates in your roller?—We have to take it in sections.

45. Were those $\frac{3}{4}$ in. plates you said you could roll cone-plates?—No, barrel.

46. How long did it take you to roll them?—Two in four hours and three-quarters.

47. How long were they?—Roughly, the circumference would be about 15 ft.

48. Fifteen feet by over 9 ft. in width?—No, I do not think they would go much more than about 8ft. 8 in.

49. Can you give me any idea as to how long it takes you to flange by hand the shell-plates of the firebox?—We could flange them for the X boiler in five days.

50. That is the largest boiler you have?—Yes.

51. How long does it take to flange a boiler-head plate?—For the X boiler we have to heat that locally, because the furnace is not large enough to take it in.

52. And the tube-plate?—We should flange that for the X boiler in about ten hours.

53. Is that done by fire, too?—For the X boilers these were imported.

54. Were they flanged when they came out?—Yes.

55. You did not do them up there?—Not for the X boilers, we did not.

56. Take the A locomotives: were they imported?—No, we flanged them.

57. How long did it take you?—Ten hours.

58. What is the diameter?—4 ft. 8 in., I think.

59. What is the thickness of the plate?—Five-eighths of an inch.

60. Single- or double-riveted?—Double-riveted.

61. How many men are engaged flanging a circular plate in the A locomotive?—A boilermaker and four assistants.

62. How many men are engaged on the front plate you spoke of?—The same number.

63. Can you give me the details of the work on the throat-plate at the back of the firebox?—Five days to five days and a half to flange it, with the same number of men and the same amount of work.

64. Do you consider that a reasonable time?—I do, for a plate of that description. It is a very difficult plate.

65. Are they all $\frac{5}{8}$ in. thick?—I think the top plate is $\frac{3}{4}$ in.

66. Have you ever drawn the Manager's attention to the want of a flanging-machine?—No.

67. I think you said it would be better if a flanging-machine were procured?—Yes.

68. But you never called the attention of the Manager to that fact?—Not officially. It has been spoken about, but I have never reported the matter officially.

69. You also spoke about the necessity for up-to-date punching-machines. Do you punch the holes in the boilers?—No.

70. You drill them all?—We work strictly to Board of Trade in that respect.

71. A flanging-machine is not much required for boiler-work?—It would be hardly used for boiler-work at all.

72. Have you ever complained about this deficiency to the Manager?—No; some time ago we were asked about our machines, and this matter was reported on.

73. You have made a complaint?—No. I recognised that my superior officer had been asked about that.

74. You say now that a proper punching-machine is required?—Yes.

75. It is only now that you have found out that these flanging and punching machines are required?—No.

76. Yet you have not complained about the matter?—The reason is that, so far as the punching is concerned, our machines are getting the worse of wear-and-tear, and our work is growing.

77. You have been working at a disadvantage with the present machinery?—For a while we have.

78. And you have not complained about it?—No.

79. With regard to the riveting, you say the sizes are $\frac{3}{4}$ in., $\frac{7}{8}$ in., and $1\frac{7}{8}$ in. Are they the sizes used in the large boilers you are making ?—There are three diameters—$1\frac{1}{8}$ in., 1 in., and $\frac{7}{8}$ in.

80. You have been taking notes of the riveting of these boilers. Can you tell me how long it takes to put in rivets of the respective sizes ?—On the circumferential seam, one minute and a half to each 1 in. rivet; for the $1\frac{1}{8}$ in. rivet on the horizontal seam, one in two minutes; the $\frac{7}{8}$ in. rivets in the smoke-box tube-plate are put in by the portable plant at the rate of one every minute.

81. Have you worked in any shop where hydraulic riveters were used ?—Yes.

82. Where ?—San Francisco.

83. What speed did you get there ?—I was only a boy of fifteen years of age, and, as a matter of fact, was passing rivets to the machine.

84. It was not a machine the same as is at Addington ?—No.

85. How fast do you reckon the machine in San Francisco put in rivets ?—I should judge, from my passing of the rivets from the forge to the workmen, that the time occupied was about the same.

86. You never made observations of speed ?—No.

87. Have you worked in any shops in this colony where hydraulic riveters have been used ?—Only in Kincaid and McQueen's.

88. Did you see a hydraulic riveter working there ?—Yes, on the boilers of the s.s. "Invercargill."

89. What was the size of the plates ?—I could not say; I should think about $\frac{7}{8}$ in. shell.

90. Have you any idea of the speed at which they were got through ?—No; it is a very long time ago.

91. *Mr. Niven.*] If you were informed that there was a hydraulic riveter similar to that at Addington in the Dominion putting in over five hundred rivets of $\frac{7}{8}$ in. size in boiler-shell work, would you be inclined to discredit that statement ?—No; everything depends on whether it is a straight run or not.

92. *Mr. Hampton.*] You spoke in your evidence of a machine used for cutting curvatures: can you tell us the name of the man who invented that machine ?—Fitter Sloane, at Addington Workshops.

93. Is it his invention, or is it his improvement on an existing machine ?—To the best of my knowledge Sloane got the tool out.

94. Are there any other machines there that Sloane got out ?—Yes, a tube-cutter and a tube-expander.

95. Is that all ?—I do not recollect about any others.

96. Do you know whether Sloane has received any special consideration in view of getting out these machines ?—I do not.

97. A previous witness has stated that he had heard that workmen in Addington were in the habit of speaking to their foremen in an insulting manner. Has anything of that sort ever come under your notice ?—No. On one occasion a man did speak to me in that way, and I brought him before the Workshops Manager and he apologized. That is the only occasion.

98. This gentleman spoke as if this conduct was allowed there, and would not be allowed in a private shop ?—It has not occurred with me, anyway.

99. You would have no difficulty in dealing with such a man ?—It would be either he or I who would go out of the works.

JOHN SPENCE CLARKE examined. (No. 15.)

1. *Mr. Beattie.*] What is your present position ?—Foreman fitter at Addington Workshops.

2. What has been your experience at Addington with regard to discipline ?—It is very good—quite as good as that of any establishment I have been in, and I have been in all the main shops of the Dominion.

3. What has been your experience before joining the Railway service ?—I started in the Railway service.

4. Have you seen any idling or loafing at Addington ?—No.

5. Taking generally the plant for the new work, do you consider that it answers the requirements ?—Yes, under the conditions which we work under.

6. If you had the cranes in the erecting-shop electrified, would that help you ?—Certainly.

7. In the furtherance of the new locomotive-work, are you able to carry on that new work all the time, or have you to give over the new work for the purpose of taking on repair-work ?—At times we have to take men off the new work and put them on to repair-work.

8. Does that interfere with the expedition of the output of new work ?—Yes.

9. Have you a good staff under you ?—Yes.

10. Have you had any experience of your staff being uncivil or insubordinate to you ?—No.

11. *The Chairman.*] Where have you had experience in locomotive-work ?—At Newmarket, East Town, Petone, Invercargill, and Addington.

12. Is Addington the only shop in which you have been employed at which new locomotive-work has been done ?—Yes.

13. Therefore, practically, you had no experience in new locomotive-work until you came here ?—Some years ago in Newmarket we built some engines, and in the same connection I had experience at Petone.

14. Have you had any experience in Australia ?—I have been a visitor at the Eveleigh Works.

15. You spoke about electrifying the existing cranes at Addington: how many lifts are made by those cranes ?—On an average throughout the year four times per day.

16. What was the speed on the cross-traverse ?—I did not take the cross-traverse.

17. *Mr. Roberts.*] What sort of locomotives had you been building at Newmarket ?—FA and LA.

18. How many ?—Four of each sort. That was while I was there ; some may have been erected since I left.

19. Were those new engines ?—Two were new engines, and two were converted.

20. What were the new ones ?—They were FA's.

21. Is that long ago ?—I left Auckland in 1896—it was a year or two previous to that.

WILLIAM HENRY COLE examined. (No. 16.)

1. *Mr. Beattie.*] What is your present position ?—Foreman blacksmith, including the forge at Addington.

2. What is your experience ?—I served my time at the Ashford Works of the South-eastern Railway Company, England, and also in Mills and Cable's works in Wellington and other similar shops.

3. What is your opinion of your present staff at Addington ?—I have a first-class staff, and would not wish to have under me a better number of smiths.

4. With regard to your smith-work generally, what is its present position ?—We are further forward than ever Addington has been known to be.

5. You have a lot of repeat-work in the smiths' shop ?—Yes.

6. Do you make special arrangements for stamping that work ?—Yes. In that connection I have brought out a great many tools not only in Addington, but at other Railway shops in New Zealand—tools for switch-rods for 70 lb. points and crossings, which work was previously done at Addington on the anvil. I am not going to take all the credit for the manufacture of my machine for points-and-crossings work ; the suggestion was previously made to me. I submitted to Mr. McCarthy and Mr. Jackson an idea for punching out the double lines, and at Addington the double lines are now punched out in the quickest manner I have ever seen.

7. Your tools facilitated the turning-out of repetition-work by the use of stamping appliances ?—That is so.

8. By how much per pound approximately have you reduced the cost of the smiths' work on points and crossings ?—A halfpenny per pound.

9. On general engine-work, what do you reckon you have reduced the cost per pound ?—About the same.

10. And, of course, you have expedited the output ?—Yes. I encourage even the youths and apprentices to think out ideas for the facilitating of the work. They submit those ideas to me, which, of course, I consider, and draw the Manager's attention to them. In nearly every case the suggestions put forward are an improvement. Even the boys in the shop are at it now.

11. You find it a good thing to encourage the employees to scheme out things ?—Yes.

12. How have cranks for velocipedes been made hitherto ?—Up till lately they have been made on the anvil, and I have just completed a tool whereby these can be turned out at the rate of one per twenty minutes, as against two hours previously. The Manager gave me permission to make this tool.

13. What time do you reckon you have saved per set by means of your appliance in the points-and-crossings work ?—We used to make about two or three a day on the anvil ; I can make eight.

14. You have more than doubled the output ?—Yes.

15. Did you do a quantity of work for the A engines which are being built by contract at the Thames ?—Yes ; the connecting-rods, the eccentric cranks, the wing-nuts for the drawing-gear, buffer heads and shanks.

16. Wherever you can you use the stamper for that work ?—Yes. There is very little stamping in that, of course.

17. You do a quantity of work for the WF class of engines now being built at Hillside ?—Yes.

18. What do you do for them ?—All the smith-work for the boilers, the connecting-rods and coupling-rods, eccentric cranks, and buffer heads and shanks.

19. How many men have you generally under you ?—Eighty men and eleven boys is the staff.

20. With regard to your shop, are you fairly well supplied with plant and appliances ?—We could do with a little more plant.

21. What additional appliances do you require ?—With this steam hammer stamping we want at least three more steam-hammers, and I would like a pair of bar-iron shears. That would save a lot of trouble. A hydraulic press for bending foundation-rings, and a more up-to-date bolting-machine would also be advantageous.

22. If you had these additional tools of a suitable type, do you think you could turn out work in competition with any one in the Australasian Colonies ?—Yes.

23. Do your men stick well to their work ?—Yes. If they do not they get treated as the last one did—he got sacked for not sticking to his work. This man I am referring to I reported to the Workshops Manager, and he was fined, and came at his tricks again. He got the sack next time.

24. Have you any incivility from the men ?—None whatever, and I have not had anything approaching disobedience since I have been in Addington. I deal with the men fairly, and if they want trouble they can have that, too, without much talk about it.

25. *The Chairman.*] When did you go to Addington ?—In July, 1904.

26. Was any stamping done in the shop at the time you went there ?—They used an old out-of-date drop-hammer for stamping hooks and eye-holes for side chains. I made tools which increased the output at the rate of five to one.

27. Was any stamping under the hammer done when you went to Addington ?—There was a lot of steam-hammer work done, but very little stamping. Since I have been in the shop the drop-hammer work I have stopped, and now have all that work done under a steam-hammer.

28. Apart from the drop-hammer, was there any system of stamping under the hammers in use in the shops when you went there ?—Not so far as I remember.

29. You stated that you reduced the cost of smiths' work practically all round by ½d. per pound ?—Yes.

30. Can you tell me what the cost of engine-work is ?—Twopence farthing per pound for labour only.

31. Does that include fuel, or is it simply labour ?—Simply labour.

31A. What is the cost for fuel ?—I could not tell you the cost per pound of ironwork.

32. What is the labour per pound on points and crossings ?—About 1¼d.

33. You do not know the fuel-cost ?—No.

34. On your bolt-work and general smiths' work ?—It will run to about 2¼d. or 2½d. on general smiths' work.

35. But you do not know what your fuel costs ?—I know what it is costing, but not what it costs per pound of ironwork. I should say that in the smiths' shop about 3 tons of coal is used per day for the smiths alone.

36. In estimating the cost of a job, how do you get at the cost per hundredweight ?—We take the fuel and the men's time on the work.

37. Do you know the cost of fuel per hundredweight ?—Not from memory. I have run out several jobs on the cost of coal.

38. Do you find that you have much office-work ?—Yes, I have a good deal.

39. How much time does your office-work occupy ?—I should say quite three hours every day. I have to make out orders for the materials for the men, and then I have ninety-one time-books to go over and sign every day, and check the order-numbers. In addition, of course, I have to hunt up the blue prints. I have no leading hand, and have to control ninety-one employees.

40. Do you check the time-books in the shop or in the office ?—In the office. I have a man to collect them, and I go through them.

41. How do you know that a man has been employed on the work for which the order number stands ?—I have all the work in my office, and give it out to them. Very often they will make mistakes in their order-number.

42. In checking these books, then, it is a matter of memory ?—It is to a certain extent ; but I go over them every day, and that is very good practice ; and I can recollect pretty well all the numbers.

43. *Mr. Roberts.*] How long does it take to make a foundation-ring for the A engine ?—About seven days.

44. How many are employed on that job ?—It takes the whole of the staff to forge them—the forgeman and four helpers.

45. How long does that take ?—About two days.

46. And the smith's time ?—He has to work very hard to get rid of it in five days, if that, and he has two helpers.

47. How long does it take to complete a buffer for the same engine ?—About four hours, including the forge-work and the smith-work.

48. With the shank and all ?—Yes.

49. How long does it take the forge to do one ?—I think we make from six to eight buffer-heads in a night. That is, about two hours for each head. We will make a shank in half an hour ; but for an engine-buffer we generally allow a little more time than for a wagon-buffer. The smith will put the shank into the buffer in about two hours. At the most, about four hours and a half altogether.

50. Take a set of connecting-rods and coupling-rods for the same engine : I suppose you rough some of them out ?—We finish in the forge. We get them near enough for machining.

51. How long does it take ?—We will do two rods a day ; it all depends on the class of rods.

52. Take coupling-rods alone ?—I have turned out four rods in a day, but good heavy going is three rods—that is, providing we shingle our iron.

53. You said something about looking over the blue prints ?—Yes, I have to supply them to all men I give work to.

54. Do the men work to blue prints ?—Yes.

55. Are they full size ?—Yes ; the full size is given.

56. They are tacked on a board ?—Yes.

57. They are full-size prints ?—Most of them are full size, and, if not, the scale is given generally 1½ in. to 3 in. to the foot.

58. Do you allow blacksmiths to work to a scale of 3 in. to the foot ?—Yes.

59. You do not always give them full-size drawings to work to ?—Not always.

60. These drawings are, I suppose, prepared in the office. Do you have anything to do with that ?—No. I simply get orders to work to them.

61. Sometimes they are 1½ in. to the foot, sometimes 3 in. to the foot, and sometimes full size ?—Yes, and even ¾ in. to the foot.

62. They are all figured, I suppose ?—Yes, and where figures are given, if the articles do not scale out to the scale, we always take the figures for it.

63. *Mr. Hampton.*] You spoke of one of your employees bringing out an improved machine for points and crossings ?—Yes ; his name is May.

64. It has effected a considerable saving ?—Yes.

65. Has May received any extra recompense apart from his wages ?—No.

JOHN BARBOUR examined. (No. 17.)

1. *Mr. Beattie.*] What is your position ?—I am foreman of the Addington foundry.

2. How long have you been at Addington ?—Six and a half or seven years.

3. What was your experience before that ?—Previous to coming to Addington I was nine months at Petone. Prior to that I worked in Christchurch, Wellington, Sydney, Adelaide, and Perth as a moulder.

4. What is your opinion of the output at Addington, judged by your experience in these several establishments ?—I think Addington compares favourably with any shop I was ever in, and in many instances it is a good deal better. I should have but small means of ascertaining the output in private shops, because the bosses take good care that an employee has not much opportunity of seeing that. But since I have been foreman, during the visits I have made to other towns when on holiday, I find that the output at Addington is a good deal in excess of jobbing-shops in New Zealand.

5. Will you describe the class of work generally done at Addington ?—I consider it is of a very intricate nature, far more so than in the average jobbing-shop, because the engines being manufactured there now—*i.e.*, the A and the X—are undoubtedly very intricate, more especially the high-pressure cylinders.

6. How many cupolas have you at Addington ?—Two.

7. What do you think of them ?—I think they do remarkably good work. From what I can gather, on looking up the American shop-practice, I find that our every-day average practice is better than the American work with the cupola. In every-day practice we average 9 lb. of iron to 1 lb. of coke, and, of course, the class of scrap we have to deal with is heavier and bigger than the average foundry has to deal with.

8. What is the heaviest casting you have made at Addington at any time ?—Six tons and a half, turntable-centre. We have subsequently turned out a 7-ton turntable-centre in two parts of 3½ tons each.

9. In all foundries you have, I suppose, a certain number of wasters in your castings. Have you a higher or a lower percentage of such at Addington as compared with outside shops ?—I consider that the percentage of wasters at Addington is a low one. It is a lower percentage than that of some shops that I have been in. The men pay attention to their work, because they know it has to run the gauntlet of the Manager and the Engineer. If it is not true to the print, then the other foremen refuse to take the work.

10. Is the pneumatic accumulator of the big moulding-machine satisfactory ?—The Tabor moulding-machine is a splendid machine, and is doing splendid work. Since the snap flask has been introduced the output has been increased by 35 per cent. per day, and, in addition, there has been a great saving in labour and in cost of plant.

11. Does the snap flask do away with the need of a very large number of ordinary iron boxes ?—Yes, it is almost impossible to calculate the number you could do without with it. I have three in the foundry, and, of course, that saves a tremendous amount of boxes.

12. Taking the standard car and wagon brake-blocks, how many brake-blocks per day will that Tabor machine mould ?—Forty per day with one man, and ninety per day with two men.

13. That is, ninety blocks ?—Ninety pair : there are two in each box.

14. In other words, you require ninety cast-iron boxes to attain that output of 180 separate brake-blocks ?—Yes.

15. How many snap flasks would you use, then, to turn out these ninety pair of blocks ?—Two. One man would work the machine, while a second puts in the cones and plates—that is, two men with two snap flasks, as compared with ninety boxes previously.

16. How long have you been using these snap flasks ?—Roughly speaking, six or eight months.

17. Did these snap flasks come with the Tabor moulding-machine ?—No.

18. Have you kept yourself posted in the most recent foundry practice of the rest of the world ?—Yes ; I am a constant subscriber to the *Foundry*, an American publication, which I find even better than publications dealing with the practice of British shops.

19. Does the *Foundry* give details of the proportion of coke to iron per cube ?—Yes.

20. Are you able to keep alongside that ?—Yes, and we can do better. Their smallest cube average is thirty-six, whilst ours is only twenty-six ; and they only melt per pound of coke 6·4 lb., while we melt 6·12 lb. with one kind of coke, and 8·13 lb. with another kind of coke, and with another kind we can do 10 lb., and with another 8·77 lb. ; so that with a 26 in. cupola, as we stand now, I think the American practice is not in it with us. Of course, this was due to the quality of New Zealand coke and to the intelligence of the furnaceman.

21. You have charge of the brass as well as the iron foundry ?—Yes.

22. Are you satisfied that the brass-foundry is working on efficient lines ?—Yes.

23. Have you any moulding-machines in the brass-foundry ?—One, the Pridmore.

24. One or two ?—One, but it does the work in two pieces.

25. Do you mould all the repeat-work you can in this Pridmore machine ?—Yes ; that is one of the instructions of the Workshops Manager.

26. By the use of these Pridmore machines you are saving a considerable amount ?—Yes. I have asked for two more of these machines, so as to obviate the necessity of taking those at present in use to pieces in order to put on other patterns.

27. With this machine you manufacture padlocks. Can you tell what saving you make per gross as compared with the old method ?—We make now in forty-eight hours what it used to take three days to make—a saving of 50 per cent. in labour.

28. Are you satisfied with your staff ?—Yes. I reckon I have got a really good staff ; they are capable, efficient, good, and honest workmen.

29. Have you any difficulty in maintaining discipline ?—None whatever.

30. Do you receive any incivility from them ?—No, I give them civility myself, and get it back from them.

31. *The Chairman.*] How do you bring your coke and iron on to the platform of the cupola ?—It is carried up by manual labour, the coke in sacks, and the pig iron is broken into about 28 lb. pieces.

32. Are you satisfied with this arrangement ?—No.

33. You said you were satisfied with the appliances ?—The Workshops Manager and I have been talking this over, and the Manager has decided to give me a pneumatic lift.

34. How is the pig iron broken up ?—At present with a hammer, but the Workshops Manager has instructed me to get a casting for a hydraulic pig-breaker, and I understand that that machine is at present being pushed along in the fitting-shop.

35. After bringing the metal from the cupola, what is the method of transporting the ladle ?—We only have the crane, and that is very slow.

36. Is that satisfactory ?—Yes. It would be more satisfactory if we had a crane that worked faster, and which would not be so hard on the men.

37. How many men does it take to manipulate the crane with, say, one of the larger ladles ?—Twelve men, arranged in groups.

38. Do you use your overhead traveller for hauling the castings out of the sand, or do you dig them out ?—We dig them out.

39. How many men have you on them, then ?—It requires six men to take a long girder-casting out of the sand.

40. That would mean a large amount of digging ?—We do not do much digging.

41. Have you a bolting-down floor there ?—I put in a small one there, 15 ft. by 8 ft., for a job, and we left it in.

42. Have you a casting-pit ?—No.

43. How do you manage castings in large work, then ?—We sink in the floor as far as we can with safety.

44. There is a good deal of water there, is there not ?—Yes, it is very wet.

45. A watertight casting-pit would be a great improvement ?—It would.

46. What do your castings cost per hundredweight for labour, material, and fuel ?—The metal in the ladle before it is run in costs actually 4s. 9d. per hundredweight, including pig iron, coke, and coal.

47. That includes breaking up the pig and the lifting ?—Yes, all labour.

48. What does the finished casting cost ?—For the 55 ft. girder for the turntable four men are occupied for two days, and three men for two days additional—in wages that is £6 7s.

49. You do not know what the cost per hundredweight for the finished article is ?—No.

50. How many pounds of metal are produced per pound of coke ?—Two pounds of metal.

51. Have you charge of the steel-foundry ?—Yes.

52. How many pounds of steel are produced per pound of coke burned ?—It takes 252 lb. of coke to melt 140 lb. of metal.

53. *Mr. Niven.*] How many men are employed altogether in your department ?—Forty-five.

54. How many permanent hands ?—I really could not tell you from memory. There are three classes—permanent, casual, and emergency casual.

55. You do not know how many moulders and how many labourers you have ?—Yes, I have eighteen moulders in the iron-foundry, four in the brass, and six in the steel. The balance are labourers and apprentices.

56. How many apprentices have you ?—Three.

57. Do you find it is not advantageous to work with apprentices ?—I do not mind apprentices, but the trouble is that I cannot get them.

58. When hauling big castings out, do you get extra labourers in ?—No, each shop works independently.

59. You are not allowed to borrow men ?—I do not know that, but we could not get them if we wanted them.

60. Was the charge of 12s. 6d. per casting given by a previous witness for large or small castings ?—Small. That is one of our troubles. We have all the maintenance work to do, and a good deal of their work comprises very light castings—windmills and velocipedes.

61. You have a fair amount of engine-cylinders, I suppose, to turn out ?—Yes, and there are a ot of castings in connection with points and crossings. Crossing-blocks are made with the Tabor moulding-machine.

62. *Mr. Roberts.*] How many labourers are there in the iron-moulding department ?—Two.

63. How many in the brass-moulding department ?—One.

64. How many in the steel ?—Three at present, but generally we have only two.

65. In addition, there is a furnaceman, I suppose ?—Yes, and his helper.

66. How many casting-dressers ?—Two.

67. Where do you get your men from for the crane ?—We use the moulders.

68. How many days in the year does the shop run ?—I should say there were in all about twenty-five days holiday.

69. Do you reckon that 538 tons of castings is a fair average per year for the number of men you have employed ?—Yes, with the class of work we have to contend with.

70. What quantity of brass castings do you put out in the year ?—On an average from 6 to 7 tons a month.

71. Have you got the exact quantity you put out last year ?—No.

72. What quantity of steel castings do you put out ?—On an average from 7 to 8 tons a month.
73. You stated that you had seen nothing to come up to Addington in point of efficiency. Have you been in any of the private shops in New Zealand ?—Yes, in most of them.
74. Have you been in Anderson's ?—Yes.
75. You think that Anderson's is not so good as Addington ?—In one respect Anderson's is better—they have an electric crane. Apart from that we have a better plant than they have.

ROBERT DONALD MCEWAN examined. (No. 18.)

1. *Mr. Beattie.*] What are you ?—A turner employed at Addington.
2. How long have you been there ?—Since the 22nd June last.
3. Where did you work before you came to Addington ?—Glasgow.
4. As a turner ?—Yes.
5. Can you tell how the industry of the men at Addington compares with that of the men in the workshops on the Clyde ?—The men on the Clyde work harder.
6. Is it piecework on the Clyde ?—No, they work on the bonus system.
7. In saying that they work harder, that applies to the turners, of course ?—To all the machine-men.
8. Are the machines driven faster ?—The men keep steadier at it, and they adopt methods of labour-saving which means an increased output.
9. That is a result of the bonus system ?—Entirely.
10. Have you formed any opinion as to whether the turners here are good men ?—They compare every bit with the Clyde men. I may say with all truthfulness that the quality of work on the Clyde is falling very rapidly. It is becoming poorer every day as a result of the bonus system.
11. What do you think of the work turned out on the lathes at Addington ?—It is very good indeed.
12. Is it a better class of work than is turned out on the Clyde ?—Yes, at present.
13. *Mr. Roberts.*] What class of work were you doing at Home ?—Mostly marine.
14. No locomotive-work ?—Occasionally cylinders; that was all.
15. *Mr. Niven.*] Why do the management not see that the work is properly turned out on the Clyde ?—They do not desire it, and will not allow their men to do better work.
16. The primary cause, then, is not the bonus system ?—That is the impetus that the management employ to force work out of the men.
17. You say that the management get more out of the men through the bonus system than from keeping to standard work ?—Yes, but the quality of the work is much inferior to what it was under the previous system.
18. What was the amount of the bonus involved ?—It gave us who were employed by the London and Glasgow Engineering Company from 5s. to 8s. per week extra, and in B. and Y. Stewart's something less.
19. What was the weekly wage ?—Thirty-six shillings per week.
20. *Mr. Hampton.*] What is your estimate of what the employer received from the extra work of the men by reason of the bonus system ?—I could not give an opinion.
21. Have you any knowledge of the output on piecework ?—I never actually worked on piecework.
22. Before the bonus system came into operation with the men on the Clyde, did they work any harder or turn out a better quality of work than do the men at Addington ?—No.
23. Do you think that the work turned out at Addington, for quantity and quality, is equal to that turned out at the Clyde shops prior to the bonus system coming into operation ?—The output on the Clyde is really larger, owing to the machines being better.
24. Apart from appliances, the men at Addington are doing work equal to that of the men on the Clyde works ?—Yes, in every respect.

GEORGE VANDERBIT DRURY BUTTS examined. (No. 19.)

1. *Mr. Beattie.*] What is your position ?—I am foreman fitter at Addington.
2. What branch of the work are you in charge of ?—The riveter-work.
3. Mr. Clarke is in charge of the new work ?—Yes, we have two foremen fitters; one is in charge of the new work, and one is in charge of the repair-work.
4. How long have you been in the service of the Department ?—About twenty-nine years.
5. What is your experience in the works ?—About seven years at Petone, two years at Addington, two years at Hillside, ten years at Greymouth, four years at East Town, and the balance, about three years and a half, at Addington.
6. In your time at Addington have you formed an opinion favourable or otherwise regarding the workmen employed at those workshops ?—Favourable.
7. Have you seen any evidence of going slow or want of industry amongst the men in the fitting-shop ?—No. I have had no difficulty in maintaining discipline. On one occasion three men refused overtime work: one went back after being spoken to; the other two, after inquiry, were dismissed.
8. You have not had any difficulty in the matter of discipline ?—No.
9. Generally speaking, for repair-work, do you find the appliances at Addington are sufficient ?—There are not enough lathes, and those we have are not sufficiently modern. If we had more modern machines we could get through a greater quantity of work with the same number of machines at present installed. Especially would that be so with the steel lathes.

10. Are high-speed steel tools used at Addington ?—In almost every case.

11. Does the big planing-machine come under your observation ?—Yes.

12. For what purpose is the big planing-machine used generally ?—For cylinders mostly. Up till the time they got the new crossing-shop it was constantly making switches for points-and-crossings work.

13. Was it used for centres of turntables ?—Yes.

14. Have you another planing-machine at Addington to take these turntable-centres ?—No.

15. Have you any trouble with apprentices ?—Not more than the usual trouble. I think apprentices should be on trial for twelve months. You cannot get a fair idea of what a boy is worth under twelve months. If he does not prove himself to be of any good you can then get rid of him. Under the present system it is impossible to say at the end of three months whether a boy is good or is not. It would be better for the boy and better for the Department to have a longer trial.

16. *The Chairman.*] You have charge of the machines ?—Yes.

17. If the foreman fitter engaged with new work requires work for repairs, how do you go about it ?—He comes to me.

18. You say that three men refused to work overtime, and two were dismissed, and one was retained ?—Yes.

19. Was there any special reason why this one man should be taken back ?—When the position was pointed out to him he returned to work at once.

20. I understand you have a certain amount of office-work to do ?—Yes. It is mostly signing my name, and there is, in addition, the time-sheets. They are supposed to be signed daily. Sometimes there are two hundred time-books in my department.

21. Where do you sign these books ?—In the office.

22. Have you tried signing them in the shop ?—No.

23. *Mr. Hampton.*] With regard to these two men who were dismissed for refusing to work overtime, were there any holidays in the week in which they were asked to work overtime ?—I think Good Friday came into that week.

24. Is it not the case that a man is not paid overtime unless he works forty-eight hours in any one week ?—I understand that is so.

25. Each day does not stand by itself ?—No.

26. Would it not be an advantage to you in the maintaining of discipline that each day's overtime should stand on its own as the overtime of that particular day ?—I would prefer it personally.

27. *Mr. Roberts.*] What is your opinion of the lathes in use at Addington generally, taking the old ones in particular ?—We do what we can with them, but they are not sufficient to get the increased output that the high-speed gear should warrant.

28. You have some lathes built specially for high speed, have you not ?—Yes.

29. Do you not think it would be a benefit to take out the old lathes and put in new ones ?—I think so, decidedly. I think twelve out of thirty are beneficial.

30. They are all at work ?—Yes.

31. The same applies to the drilling-machine ?—Not so much. We have got some fairly good machines for drilling, but they are not up to date.

32. What do you think of the present lifting-appliances ?—They are not very good.

33. Do you think anything could be done to improve the present shop ?—I think it would be useless to do anything with the present shop except that the repair-work might be separated from the new work.

Daniel Joseph Round examined. (No. 20.)

1. *Mr. Beattie.*] What is your position ?—I have got charge of the painting, tarpaulin, and trimming department at Addington, and I have had thirty years' experience in the Railway service. During that time I have worked at Addington, with the exception of eight years at Newmarket, Auckland.

2. By way of comparison with Newmarket and Addington, do you find that there is any appreciable difference in discipline and industry in the conduct of the work ?—I cannot say that I have noticed any difference. They may appear to be a little more bustling in Newmarket, but that might be because of the restricted area of the works. All the same, the men work just as hard at Addington as they do at Newmarket.

3. Does that apply to trimmers and tarpaulin-men ?—Yes.

4. You are quite satisfied that throughout the whole department you have an efficient staff at Addington ?—Yes.

George Edward Richardson examined. (No. 21.)

1. *Mr. Beattie.*] What is your position ?—Workshops Manager at Addington.

2. What is your number of years in the service ?—Twenty-five and a half years.

3. How many years have you been at Addington ?—Fifteen months as Workshops Manager.

4. What was your position prior to that ?—Workshops Manager at Newmarket, previous to that Manager at Hillside, and prior to that Locomotive Engineer for Westland and Inspecting Engineer for the Nelson Section.

5. In your office do you keep a book for the issue of permits to visitors ?—We do.

6. Have permits been issued to the Hon. Mr. Jenkinson within the last twelve months ?—Yes, on two occasions.

7. Can you give the dates ?—The 12th November—that was during Carnival Week—and the 16th November, the first working-day after the Carnival Week holidays.

8. Has he not been out since ?—He was out one day last week, but I do not remember the date.

9. In connection with those visits of Mr. Jenkinson since you were Workshops Manager, did he call your attention to any idling ?—He never spoke to me at all on either visit.

10. From your own knowledge and observation, have you seen any idling as a general thing in any shop at Addington ?—No.

11. Any individual instance you have taken up, I suppose ?—I have.

12. To say that any particular department at Addington was "going slow"—is that true or otherwise ?—It is not true.

13. Have you an intimate knowledge of the boiler-shop work ?—I have.

14. In your observation have you found Mr. Henderson an attentive foreman ?—Most attentive.

15. How about the men in the boiler-shop ?—They are a good working lot.

16. How many hydraulic accumulators are there in the boiler-shop ?—Two.

17. What are they used for ?—One is connected with the hydraulic riveters, and the other with the presses.

18. The one connected with the hydraulic riveter—have you any reason to suppose that that has been frequently inefficient ?—No. There are times when perhaps the pumps are not working as they should, and that causes a little trouble, but when put in order they are all right.

19. When out of order they are at once attended to ?—Immediately.

20. Would you say that the Addington staff generally is efficient ?—Yes, most efficient.

21. Have you a quantity of pneumatic hoists in the Workshops ?—We have them distributed all through the shops—of our own make and imported ones.

22. These pneumatic hoists, I suppose, save a lot of labour and time ?—Yes.

23. You have overhead cranes in the erecting-shop ?—Yes.

24. There were certain lifting-speeds and travelling-speeds given to the Commissioners: did you hear them given ?—Yes.

25. Were they correct ?—They were practically correct.

26. The speed depends to some extent on the weight of the lift ?—Yes.

27. How many times a day do you think the cranes in the erecting-shop are in use ?—Twice a day as an average all the year round.

28. If these cranes were electrified would it result in a considerable saving of time ?—Yes. If electrified we should use them more.

29. We have been told that the big planer is a useless tool ?—It is most useful.

30. Is it essential ?—We could not get on without it or a similar tool.

31. Have you any milling-machines out of use ?—No.

32. There has been a certain amount of evidence given as to the loss of time in changing from new to repair work when repair-work was wanted to be put through quickly ?—That is the case.

33. Is that inseparable from any shop doing new and repair work ?—It cannot be avoided.

34. What would be a better method ?—To erect a new shop for new work.

35. As the conditions are at present you cannot avoid taking men from new work when repairs are required ?—That is so.

36. With regard to high-speed steel for tools, is full advantage being taken of the benefit of high-speed steel ?—Yes.

37. Do you find more than one make thoroughly efficient ?—Yes, we have several makes there.

38. You have not been restricted to any one make ?—No.

39. So far as you know, have you the best high-speed gear available ?—Yes; it has proved to be the best after trials.

40. Has it resulted in a very much increased output of certain machines ?—Yes. It has doubled the output of certain machines.

41. It enables you to run at a very much higher cutting-speed ?—Yes, a higher speed and a heavier cut.

42. Have you made considerable use of high-speed steel twist drills ?—Yes.

43. Of various makes ?—We principally use two makes.

44. What is the result you have found from the use of these drills ?—A big saving of time.

45. I suppose you have a lot of tank-plates to do: do you find it is quicker to drill them in sets, or do you find it is quicker to punch them ?—It is quicker to drill them in sets or bundles.

46. Can you give any example of the time taken in drilling certain holes with these particular drills ?—I cannot from memory, but we have the results of trials. In one instance, in unannealed cast steel, an inch drill accomplished 4 in. per minute.

47. Have you found any difficulty in maintaining discipline at Addington ?—None whatever.

48. Have you had any insubordinate language addressed to you by any employee ?—No.

49. A question arose in the course of the inquiry as to the need of an additional leading hand in the boiler-shop: what do you think of that ?—I do not think it is needed in the present state of things.

50. Taking the plant generally throughout the Workshops, have you found it to be efficient ?—Yes, generally speaking.

51. What do you consider are the points most needful to strengthen ?—The lifting and the lathes.

52. And, with regard to the lathes, you want more of them ?—Yes, more for the high-speed steel work.

53. Would you find it any benefit to have the machines in the machine-shop motor-driven ?—It is my opinion that it would be an advantage to motor-drive them, or group them with a smaller power.

54. Do you endeavour to lay out the work in such a way that you will get it through in the least possible time ?—It is laid out in the best possible manner to put it through in the least possible time and at the lowest cost.

55. With regard to the points-and-crossings shop, have there been any improvements since you have been there ?—Yes.

56. In what direction ?—In the system of working the different classes of rails. Different tools have been introduced in the blacksmiths' shop for producing the different parts, and wherever labour could be saved it has been saved.

57. Has the output of points and crossings been increased thereby ?—Yes.

58. And the cost reduced ?—Yes.

59. Are points and crossings made from the Manufacturing Account ?—Yes.

60. You have other Manufacturing Accounts in the works ?—Yes.

61. You yourself keep an eye on the state of these Manufacturing Accounts ?—I watch them as closely as it is possible to do.

62. And if you found that any particular class of article was costing more than was allowed for it, what would you do ?—I would take it to the foreman at once, and go into the whole thing and see where the leakage was.

63. Is it the case that all the Manufacturing Accounts make a surplus ?—Yes.

[Summarised statements of staff at Addington, wages paid, value of work done, and new stock manufactured, put in.]

64. Are the A engines built at Addington similar to those at the present time being built by Price Bros. ?—The last three are to the same drawings as the engines constructed by Price Bros.

65. Taking the net cost of wages and material at Addington, what was the total amount for these engines ?—£4,310.

66. Did that include the Westinghouse brake and everything complete ?—Yes, the engine complete ready for the road.

67. What was Price Bros.' contract price ?—£3,998.

68. What was the cost of adding the Westinghouse brake ?—£210.

69. What is the cost of completing the painting, which work is done at Addington ?—£20, making a total for the engine of £4,228.

70. Supposing Price's took the contract for these engines at too low a figure, do you think it would result in leaving them without any profit on the job ?—I think it would.

71. Has Addington built locomotives of the WF class ?—Yes.

72. Have some of the same engines been built at Hillside ?—They were built at Hillside.

73. Did Addington supply any proportion of the material to Hillside ?—Yes, the brass castings, steel castings, forgings, and the boilers.

74. What did the forgings comprise ?—Connecting-rods, coupling-rods, crank-pins, buffer heads and shanks, and other parts of the draw-gear.

75. Did the second lot of boilers cost more or less than the first batch ?—Less by £10 per boiler in wages.

76. We have had from England certain flange-plates already flanged. Have you taken any notice of them ?—Yes. They were imported for the WF and X engines.

77. Were they a good job ?—Yes, excellent.

78. Did you compare the cost of these flanged plates complete with the cost of unflanged plates here, plus the cost of flanging locally ?—We took out the difference in the cost as near as we could get at it. Of course, I do not know that the figures we got were absolutely correct, but I think they were very near it. In some cases we could do them cheaper, and in other cases it was in favour of the imported article.

79. Can you state what the cost per pound is on the average for the various forgings for the Class X engines ?—They were principally made in mild steel, and the cost of forging was 4¼d. per pound, including wages and material.

80. What was the cost of wages separate from material ?—Twopence three-farthings.

81. Can you give the Commission any particulars generally regarding improvements introduced at Addington to increase the output ?—There is a patent cutting-tool which was erected and placed on the plate-planer. That allowed us to cut out the cone-plate for the X boiler in nine hours.

82. That, you say, is a patent tool ?—Well, it was never patented.

83. Do you use that tool on the frame-plates ?—No. The cone-plate we were able to cut out with this tool in nine hours at a cost of 10s. 1½d., whereas the first one which we did by means of drilling cost us £2. Then there was the attachment we put on to the wheel-lathe, which enables us to do two wheel-centres at one time.

84. Did that result in a saving of time ?—Under the old process it took us nineteen hours to bore a pair of wheel-centres; with the new process we can do the same work in twelve hours.

85. Are there any other improvements ?—Tools of different sorts have been introduced in connection with points-and-crossings work. The tools in that line do work which formerly was done by hand.

86. And with regard to the snap flask ?—We use that in three foundries—brass, steel, and iron. In connection with the Tabor machine alone we saved in the moulding-boxes £29 14s. 10½d. It is impossible to get at the exact saving achieved by reason of the improved appliances in the moulding-shop.

87. Had you any difficulty at one time with regard to annealing ?—Yes, when I came to Addington we could not do it at all satisfactorily.

88. What did you do ?—Took out the annealing-retorts and put in fans.

89. What was the result ?—Very satisfactory castings—equal to anything produced in the Dominion.

90. With regard to the equipping of some of the older lathes for the use of high-speed tool-steel, have you made any alteration to the cone ?—Yes. In the last lathe we took off the five-speed cone and replaced it with three-speed, which enabled us to get considerably more out of the lathe.

91. Have you the same idea with regard to the other lathes ?—As opportunity offers we will do the same to all of them.

92. Will that result in an increased output from the old lathes ?—Yes.

93. Is the slipping of the belts one of the drawbacks at the present time ?—Yes, it is. The belts are too narrow.

94. Have you improved the steam-supply to the steam-hammers ?—We have.

95. Are you thoroughly satisfied with the output of the moulding-work in the foundry ?—Yes, iron, brass, and steel.

96. Have you found that the foreman moulder uses his brains ?—He is a very capable foreman.

97. From your own research, reading, and inquiry, are you satisfied that the work in the foundry is being efficiently dealt with ?—I am quite satisfied of that.

98. Can you tell me the working-speed of the overhead crane in the foundry ?—With a 4-ton load it will travel practically at the rate of a foot a minute—that is, hoisting—seventeen minutes to lift 18 ft. It will lower at the rate of 2 ft. a minute.

99. Is there an air hoist for that crane ?—There is.

100. What is its capacity—either 5 or 7 tons ?—I am not quite certain.

101. If you get that air hoist for the foundry will you be reasonably provided for in the meantime ?—Yes.

102. Would it be as good as electrification ?—No, but it would help us considerably.

103. Are castings made to the Manufacturing Account ?—Yes.

104. Has that Manufacturing Account been debited with all repairs, renewals, additions, and tools for the foundry ?—Yes.

105. Was there a balance of profit to the foundry after entering up all charges ?—Yes, a profit for the year of £650.

106. That is after charging everything that is chargeable ?—Yes.

107. At what rate are the compound-engine cylinders issued ?—Twelve shillings and sixpence per hundredweight.

108. Can you tell me what you consider the metal costs in the ladle ?—Four shillings and ninepence per hundredweight.

109. Can you give an instance of the cost per hundredweight of representative castings ?—The compound cylinder for the X engine—that costs us 13s. 2d. per hundredweight to produce. That is the net cost. The heavy casting for a turntable costs 5s. 8d. per hundredweight net to produce.

110. Have you any figures with regard to steel castings ?—They cost us 1¾d. per pound, and it costs us ¼d. to anneal.

111. That is the average cost of castings ?—Yes.

112. How many locomotive-cylinders have been cast at the Addington foundry ?—Ninety.

113. Do you remember how many "wasters" there have been ?—Four.

114. Have you made comparative tests of New Zealand and imported coke ?—I have.

115. What is the result ?—New Zealand coke gave us the best results.

116. Are you satisfied with regard to the output, and so on, of the brass castings ?—Yes.

117. How many pounds of brass castings were taken out for the year ending 31st March, 1908, the term "brass castings" including bronze ?—149,169 lb., at a net cost of £6,224.

118. Can you state the profit made on that ?—£1,918. The issue-rate is 1s. 6d. for bronze, 1s. for brass, 1s. 3d. for copper, and 2d. for lead.

119. When you were at Hillside, did you have any big work there—say, in the shape of the verandah for the Dunedin Railway-station ?—Yes, we built the steel frame for the Dunedin Station verandah. The weight of the steel in that worked out at 200 tons.

120. What did that work out at per ton ?—£7 11s. 3½d. per ton for wages and material supplied.

121. Was it a complicated piece of work ?—Very much so; there were scarcely two pieces alike.

122. Can you give any information with regard to the forgings ?—General forgings cost us in wages alone ¾d. per pound; stampings, 1d. per pound; bar iron, ½d. per pound; and blooms, ⅛d. per pound.

123. *Mr. Roberts.*] Why do you say "bar iron" ?—We manufacture bar iron for other shops out of scrap-iron.

124. *Mr. Beattie.*] The bar iron to which you refer is for special purposes, and is unobtainable in the ordinary market ?—That is so.

125. Have you given any special attention to the running of the machines at the highest practicable rate ?—Yes, we are running the machines as hard as we can run them.

126. Did you some time ago have a visit from an expert engineer representing certain steelworks in Sheffield ?—Yes.

127. Did he show you what he thought were the best methods of dealing with certain high-speed steel, and the best way in which to handle it ?—Yes.

128. Have you since found that your men can work up the same rate of speed as he demonstrated ?—Experience has proved that we have done considerably better than that expert engineer showed us how to do. We harden it to better perfection than he did.

129. He was a practical man ?—I understand so.

130. Did he dress his own tools and harden them himself ?—Yes, and watched our men do the same.

131. You got a distinct benefit from his advice and demonstration ?—Yes.

132. And have been able to still further improve on it ?—Yes.

133. Can you quote certain cutting-speeds at which you are working ?—The wheel-lathes are averaging a cutting-speed of 29 ft. a minute.

134. Is that on hard-steel tires ?—I have taken that as the average. We are going 32 ft. on some of them. On wagon-axles we do the roughing work at 45 ft. per minute, finishing at 18 ft. per minute. The average of the milling-machines is about fifty-five revolutions per minute; the planing-machines vary from 22 ft. to 50 ft. per minute cutting. Our drilling runs at 150 to 198 revolutions per minute, and the feed in the drilling is $1\frac{3}{4}$ in. to $1\frac{1}{4}$ in. per minute.

135. In all cases you refer to the use of high-speed steel ?—Yes.

136. Have you taken out any costs of machine-work ?—The lathe-work for engine gear costs 4·3d. per pound (wages, of course); turning axles, 0·350d. per pound; boiler-mountings, brass, 6·3d. per pound; milling, 2·47d. per pound; drilling, 0·360d. per pound.

137. Do you frequently take out the costs per week so that you can compare ?—Yes.

138. Will you explain the method of time-keeping at Addington ?—The men enter the job-number and the time, and the sheet is taken out of their books and brought into my office and the time totalled up. From there it is taken on to the foreman, and then to the Locomotive Engineer's office for the purpose of pay-sheet. The time is taken off in my office for the purpose of compiling the Workshops accounts.

139. Do the foremen initial the men's time-sheets every day ?—Yes.

140. Which do you consider is the better method—the books to be taken to the foreman's office, or the foreman to go round with the books ?—On the whole, the books to be taken to the foreman's office. The men are scattered all over the place.

141. Generally speaking, do you take every opportunity yourself of being about the Workshops ?—I am there all day.

142. *The Chairman.*] You have two accumulators in the boiler-shop: what is their type ?—The ordinary type of accumulator; they came from Home.

143. As part of a plant or as accumulators by themselves ?—I could not say; they were there before my time. I rather think they came with the first hydraulic riveting plant, but I would not be absolutely certain.

144. When the new hydraulic riveter came out, was an accumulator sent with it ?—No.

145. Therefore there are two accumulators of the type usually used in conjunction with the hydraulic riveters ?—Yes.

146. And those have since been tapped for working other machines ?—That is so.

147. Has this given rise to any inconvenience owing to the accumulator running down ?—At times there has been inconvenience, but nothing extraordinary.

148. Could you give us a general idea of the pneumatic system in use in the shops—as to the number of stations where air is compressed, and as to the general run of the pipes and the use that is made of the system ?—We have the one compressor, and a reservoir close to it.

149. What is the type of the compressor ?—Ingersoll Rand.

150. What is its capacity ?—I think 350 cub. ft. of free air per minute.

151. How is it driven ?—By steam.

152. With an independent engine ?—Yes.

153. Simple or compound ?—Simple.

154. And from the compressor ?—We have a pipe-line running right up to the top end of the boiler-shop, and I suppose there are seven or eight stations for connecting up on that line.

155. What is the size of pipe ?—Two-inch. Then we have a pipe-line running down the erecting-shop for the purpose of the air tools there, and we also have it through part of the machine-shop for the air hoists. In fact, it goes right through the machine-shops for that purpose. We also have it laid over to the points-and-crossings shop to the air hoist there, and into the car-shop for the hoists and the Westinghouse brake.

156. Have you any system for reheating the air ?—No.

157. We were told this morning that Fitter Sloane had introduced a machine for cutting curvatures in boiler-plates ?—That is so.

158. That machine originated with yourself ?—That is so. I gave Sloane the idea and told him what I wanted, and he worked it out. I give Sloane the credit for working it out.

159. Did you give him sketches ?—Very rough.

160. He worked it out on your suggestion ?—Yes.

161. Was he ever recommended for any consideration ?—No.

162. It has been stated that May introduced some special tools for dealing with points and crossings: is that statement correct ?—That is correct; it was before my time.

163. We have heard from witnesses that there is a system in vogue which I think we now fairly understand, called the staffing system. What is your experience regarding the working of that system ?—It is inconvenient at times.

164. Have your hands been in any way tied or your authority in any way interfered with by this system ?—No.

165. Have you ever forwarded a strong recommendation with regard to the dismissal of a man which has not been acted upon ?—No.

166. All your suggestions have been concurred with, then ?—Yes, as far as I can remember.

167. You say you have noticed no loafing in the shops at all ?—I will not say none, but practically none—not more than you would see in the ordinary shop. There have been individual cases which have been taken up.

168. Comparing Addington with Hillside, is there any difference in the lay-out of the shops ?—A marked difference.

169. What is the effect ?—That Hillside is the cheaper shop to work.

170. With regard to your own inspection of the shops, have you found that there is any difficulty in the work of inspecting at Addington ?—No, except that it takes more time to get over the place, because the shops are somewhat scattered.

171. With regard to surprise visits, do you find Addington is more difficult than Hillside in that respect ?—Yes.

172. Have you asked for new lathes ?—Yes, I think so.

173. Have you asked for additional lifting-appliances ?—For the foundry.

174. Not for the erecting-shop ?—No.

175. With regard to the Manufacturing Accounts, I understand that all labour is charged to them ?—That is so.

176. Is material charged ?—Yes.

177. At what rate is material charged ? For instance, at what rate are rails charged in points and crossings ?—At the rate they are paid for at Home, plus stores commission.

178. That is supposed to be the rate at which they can be delivered in New Zealand ?—Yes. We have to pay the same price as it costs the Maintenance Department to buy them, plus 2½ per cent., the commission of the stores.

179. What do you pay for your pig iron and for your scrap ?—Pig iron, £4 6s. 1d. is the average per ton ; scrap—cast-iron scrap—we pay £3 per ton for.

180. You mentioned that the metal in the ladle costs 4s. 9d. per hundredweight. What proportion of scrap is in that metal ?—Seventy-five per cent. of pig and 25 per cent. of scrap. The average cost is £3 19s. 6d. per ton.

181. What do you pay for coke ?—£2 5s. per ton for Brunner, and £1 5s. for gas coke.

182. What fixed charges in the way of upkeep, depreciation, and supervision are put against the Manufacturing Account ?—Supervision is charged, I presume, but I am not in a position to give those figures. Our profit is based on our cost of production and what we sell for.

183. What does your cost of production include ?—Only labour and material and actual workshop charges.

184. Did I understand you to say that you were quite satisfied with the output and method of work in the foundry ?—Yes.

185. Are you quite satisfied with taking the coke up to the cupola by hand ?—Oh, no ! but at present we are making an air lift and a hydraulic breaker.

186. You hope to be satisfied shortly ?—Yes. I took your question to refer to the inside of the foundry.

187. Are you satisfied with the quality of the steel castings ?—No, not yet. I hope to do better ; but they are satisfactory to a very great extent.

188. You gave us some speeds of cutting which were in vogue at the present time, but you omitted to mention the traverse and depth. Take the big wheel-lathe, which you said had a cutting-speed of 29 ft. per minute. What is the traverse of that ?—$\frac{1}{32}$ in. cut and $\frac{1}{15}$ in. feed.

189. And of the planers with a speed of 22 ft. to 50 ft. per minute ?—The average cut is $\frac{1}{8}$ in., with $\frac{1}{32}$ in. of feed.

190. You think it is preferable for the foreman to initial the books in the office, for the reason that the men are so scattered : do you not think these scattered men require supervision ?—So they do have supervision. The leading hand looks after them as well as the foreman.

191. Is not the foreman continually amongst them ?—Yes, he is continually on the go.

192. Do you think it is possible for the books to be initialled on the job itself ?—I do not think it is impossible, but I think it works better for the foreman to have the books in his office.

193. Are you satisfied with this system of keeping time ?—No, I am not.

194. You think an improvement could be made ?—I think so.

195. *Mr. Niven.*] Is the riveter on a hydraulic riveter a tradesman ?—A first-class boilermaker.

196. It has been mentioned by you and others that you think it would facilitate the work if new work were separated from the repair-work. Is it not possible, with the small number of locomotives you make, that it would increase the expense of the work ?—It would not pay to put up separate shops for a small number of locomotives.

197. If you had your staff separated you could not get the same use from them ?—No.

198. If it was agreed to make locomotives in groups of five you would recommend it ?—Yes.

199. But not under the present system ?—No.

200. Does your price for castings include the cost of patterns ?—No ; patterns stand to a separate account.

201. Do you manufacture your own bronze ?—Some of it ; some we import.

202. Is the biggest proportion imported or manufactured ?—The biggest percentage, perhaps, is imported—possibly half and half.

203. Do you put a different price on the manufactured from what you do on the imported ?—No, we charge it all at the same price—1s. 6d. per pound. The imported article costs us 1s. 3½d. per pound.

204. You have told us about making improvements—what you call patents and improved machines, and appliances generally. Of course, you know that a great deal of time is taken up in experimenting. To what is that time charged, and the material used on those improvements ?—To the Workshops Account.

205. *Mr. Roberts.*] When was this snap flask invented ?—I do not know.

206. Who did it ?—The foreman and myself were looking through a catalogue, and we saw it on the cover and made it from that.

207. I believe the snap flask was invented before I was born ?—That may be ; but when I saw it on the catalogue it was the first time I had seen it, and the first time the foreman had also.

208. When you get the hydraulic pig-breaker and the air hoist for lifting the metal to the stage, do you expect to reduce the cost of the castings ?—It will save a man's wages.

209. Have you formed any idea as to how much per hundredweight it will reduce the cost ?—I have not gone into that yet.

210. Do you use coaldust in the sand ?—Yes.

211. Do you make allowance for that ?—Yes, it is accounted for.

212. You said that the Dunedin Railway-station verandah was complicated and curved. Was it not made in separate principals, with a great number of principals alike ?—There were a great number of principals, but very few were exactly alike.

213. There is no curve on the station ?—No, but there are curves in the principals.

214. Are there not a number all the same ?—Yes, but there are a great number that vary.

215. With regard to the taking-on and discharging of men, would it not be preferable if you had power to take on and discharge them yourself ?—I think so.

216. *Mr. Niven.*] How do you charge patterns ?—They are charged against a separate account.

217. Labour only ?—Labour and material.

218. Do you show a profit on the labour ?—That I am not prepared to say from memory. It is a separate order that we charge patternmaking to. Patternmaking shops are a separate branch.

219. *Mr. Hampton.*] Why do you think it is preferable that you should have the taking-on and discharging of men ? Have you had any difficulty at any time in dispensing with a man ?—No.

220. There can be no good reason, then, for making a change ?—We cannot always get men.

221. You have had no difficulty in discharging them ?—No, except that it takes too long.

222. I take it, however, that your remarks only refer to what are known as "emergency labourers" ?—Casual labourers.

223. There are "casuals" who have been there for several years ?—Yes.

224. You do not ask this power for them ?—No, I really refer to "casuals."

225. You are perfectly satisfied with the present arrangements as regards the others ?—Yes.

226. Who has charge of the fitting of cars and vans with the gas arrangements ?—That comes under the jurisdiction of the foreman carpenter.

227. Who is the man who has the particular job of doing the work ?—Fitter Turner.

228. Do you find him a capable man ?—Yes.

229. Has he brought about any improvements in the gas-burners ?—Several.

230. Are they working satisfactorily ?—Yes.

231. Has he been recommended for any special consideration ?—He has.

232. As regards the blacksmiths' shop, is there any necessity for a leading hand to assist the foreman ?—I think there is now.

TUESDAY, 16th MARCH, 1909.

JAMES WILLIAM NICHOLS examined. (No. 22.)

1. *Mr. Beattie.*] What is your position ?—Boiler-inspector for the New Zealand Government Railways.

2. How long have you been in the New Zealand Railway service ?—About twenty-eight years.

3. How long have you occupied the position of Boiler-inspector ?—For nearly twenty-one years.

4. Starting with your apprenticeship, what experience have you ?—I have had about forty-four years' experience as a mechanical engineer, starting in the shops of the London and North-western Railway Company at Wolverton and Crewe.

5. Your duties take you all over the New Zealand railways ?—Yes.

6. *The Chairman.*] Did you serve as a fitter or a boilermaker ?—As a fitter. We did a certain amount of boiler-work all the same. We went into the shops occasionally.

7. *Mr. Beattie.*] During your inspection trips you have to visit Addington frequently, I suppose ?—Yes.

8. On these visits to Addington have you noticed any of this reported idling ?—I have seen no idling there.

9. Would you have had an opportunity of observing it had there been any going on ?—Yes, I am moving amongst the men both in the boiler-shop and in the erecting-shop, and working amongst them.

10. In your opinion, are the men at Addington as industrious and as diligent, so far as you can judge, as they are in the other Railway Workshops ?—Quite as much ; I see no difference.

11. Will you state what, in your opinion, is the quality of the boiler-work ?—The boiler-work is of the highest standard. It is made according to Board of Trade rules, and, of course, that is the highest standard.

12. Have you seen any evidences at Addington during any of your visits of any want of discipline ?—None whatever.

13. Do you know Mr. Henderson, the foreman of the boiler-shop ?—Very well indeed. I come into contact with him every time I visit there in the course of my duties.

14. How many years have you known him ?—Ever since he has been at Addington.

15. From what you know of Mr. Henderson you would think he was a man who would enforce discipline ?—I should say so.

16. Would you think, from what you know of him, that he would endeavour to get the maximum amount of work out of the men in the shop ?—Yes, I am quite sure that he would, from what I have seen of him.

(This concluded the evidence called by Mr. Beattie.)

JAMES HISLOP (called by Mr. Hampton) examined. (No. 23.)

1. *Mr. Hampton.*] What is your present position ?—I am a retired Railway servant.

2. You were employed at Addington Workshops ?—Yes, for fully twenty-four years.

3. What other shops have you worked in during your lifetime ?—I served my time with the old firm of Tod and McGregor, in Glasgow, in 1864. I also worked in the Anchor Line Shipping Company, Glasgow, for five years; with Messrs. King and Co., Glasgow; in Dubbs and Co.'s locomotive-works; and also in Nelson's, in Springburn. In New Zealand I have worked in the Hillside Shops, in Messrs. Sparrow and Co.'s, and in Morgan and Cable's at Port Chalmers. I have worked also with Price Bros. at the Thames, and with Messrs. Brown and Smale at Gisborne.

4. Would you tell the Commissioners how the discipline and work done in Addington compares with that of the various other places you have been in ?—I have worked in those different private shops I have mentioned, and at Addington I have worked as hard as ever I worked in any shop, either in the Old Country or in New Zealand.

5. That applies also to the time you were with Price Bros. ?—Yes, I worked as hard in Addington. A. and G. Price was the name of the firm then.

6. Mr. Jenkinson stated in his evidence that he had recommended you, together with Messrs. Earwaker and Ross, for appointment as leading hand in the boilermaking-shop. Did he do this with your authority ?—No.

7. Did you ever approach Mr. Jenkinson and ask him to speak to Mr. Ronayne on your behalf ?—Never.

8. *The Chairman.*] You say you worked as hard in Addington as in any private shop. Can you give us any idea, speaking generally, of the manner in which the hands worked apart from your own case ?—Speaking generally, the Addington men work as hard and as honestly as the men in any shop I have been in.

9. Speaking generally, of course, with regard to the boiler-shop ?—Yes.

HUGH SLOANE examined. (No. 24.)

1. *Mr. Hampton.*] What is your present position ?—I am fitter in charge of the tools at Addington.

2. How long have you held this position ?—Since 1890, I think.

3. What other experience have you had in addition to that at Addington ?—I have worked with John Martin (Limited) in the North Island, and with Messrs. Scott Bros.

4. What is your experience with New Zealand firms ?—After leaving Scott Bros. I went to Cable's at Wellington, and from there came to the Addington Workshops.

5. Do you find that Addington for discipline and work compares with the other places in which you have been employed ?—I think it is superior.

6. Mention was made here yesterday of your having brought about improvements in connection with the machinery and appliances. Could you give the Commissioners some particulars of those appliances ? Take the hydraulic coupling for flexible tubes to connect the portable riveter ?—They had no couplings to connect that machine, and no couplings were supplied with the pipe, and Mr. Haskins told me that he had tried to make a coupling to connect the pressure-pipe, but it blew out every time. Both Mr. Haskins and Mr. Henderson came at me several times to see if I could make a coupling to hold the pressure. I eventually undertook the work, and it proved a perfect success. It never once came off until the pipe gave way through long use.

7. What about the stud-extractor used in the boiler-shop ?—It is used in the fitting-shop and in the boiler-shop. It is a very simple little affair, and could be made for about 3s., but it is worth its weight in gold. By this contrivance of mine studs can be taken out and put back again as required with the least possible difficulty. It is so simple that it is hardly worth while to patent it.

8. The radial cutting-head in use at Addington is also one of your contrivances ?—Yes, and I claim that it has very materially decreased the time occupied in the work for which it is used.

9. You also manufactured tools for making ticket-nippers ?—Yes. I made those tools at the request of my foreman. The Department were paying 15s. or 14s. for these ticket-nippers, and after I had looked at the machine I came to the conclusion that I could turn them out easily at 7s. I made the tools, and they are now in use, and have turned out some thousands of ticket-nippers. These tools are thoroughly original.

10. You were also concerned in the designing of dies for making swab-irons ?—Yes. When Mr. Smith was foreman of the Addington Workshops he came to me with one of those swab-irons and said that Mr. McCarthy was making them by hand, and asked me if I could make a die. I said, "I suppose so," and at once set about devising a punch and die. I succeeded, and my device is in use now; and by its means as many swab-irons are turned out now in a day as were formerly turned out by hand in eight or ten days, and they are better made.

11. You also made an apparatus for boring king-pin holes in carriages ?—Yes. There had been a great deal of trouble occasionally in getting the $1\frac{3}{4}$ in. king-pin bolts out of the carriages and replacing them with 2 in. bolts. Mr. Handysides came to me and asked me to try and suggest some way of getting these pins into the holes other than that in use at that time. Up to that time I do not think two men could do the work that was required under eight hours, and this appliance of mine does it in one hour. The adjustable-feed head-clamp for widening the buffer-pin holes is also an invention of mine, and is now in regular use. It was also at my instance that the half-tooth feed, which is used on the large planing-machine, was adopted. I had no instructions as to what to do, but the Manager asked me to endeavour to make the feed finer. I devised a half-tooth feed so that the machine will now feed from half-tooth to three-tooth.

12. Were you responsible for the introduction of an improved tube-expander ?—Yes, and the tool I made is superior to anything I have got from the Stores or anywhere else. This expander of mine would outwear five or six Dudgeon's expanders, and then it would be good.

13. Did you invent an internal tube-cutter ?—That is a thing I really claim I should get notice for. This cutter is quite an improvement on any other internal tube-cutter. At any rate, it is one of the best, and I made it and patented it by permission of the head of the Department. [Witness gave a detailed description of the working of the tube-cutter, which he submitted to the Board for their inspection, and handed in copies of correspondence between himself and the Department relating to his claim for monetary consideration for his invention.]

14. In working these things out, and thinking over them, have you occupied any time outside of working-hours ?—The thinking and planning of them is entirely done outside of working-hours. I lie awake many an hour thinking on these things.

15. The treatment you have received, you think, does not encourage you to use your brains much ?—Certainly not. I may say also that I have planned a method for obviating the danger always experienced in regard to the belting slipping off. That has always been a great source of trouble and danger. The larger the shop is the greater is this trouble, and I think that on a low calculation Addington loses eight hours every month in belt-replacement. By my appliance there is no necessity to stop the engine at all. I have also invented an improved boiler-stay tap, which has greatly facilitated the process in that work. An improvement on the perforated punch is another of my devices which is very valuable as a labour-saver. I have got very little encouragement for what I have done.

16. *The Chairman.*] What is your rating at Addington ?—I am called a fitter.

17. Are you rated as tool-room fitter ?—No, as Fitter Sloane.

18. What are you paid ?—Ten shillings and sixpence per day.

19. You are not rated as tool-room fitter ?—No; I have been in charge of the tools since Mr. Smith was made foreman.

20. Is it your duty to look after the tools and construct new tools ?—It is not my duty to construct new tools, but it is my duty to keep the old tools in order; and it is my duty to order new tools from the Stores, but not to invent tools.

21. You are not asked by the foreman to make tools ?—I am invited to make tools.

22. Were you asked to make a coupling for flexible hydraulic tubes, or did you suggest a coupling ?—I was decidedly asked and pressed to make that coupling.

23. Were you asked to make the stud-extractor ?—No, I made that, and after I made it I showed it to my foreman, who approved of it.

24. Was the radial cutting-head suggested by you, or were you asked to make it ?—I was asked by the foreman.

25. You spoke about a die for making swab-irons which you were asked to manufacture by Mr. Smith. How is this die used ?—It is used under the large punching-machine.

26. Are you quite certain that you were asked by Mr. Smith to make this die ?—Yes.

27. What were the dies made of ?—Cast steel.

28. Would you be surprised to learn that swab-frames were made under the large stamping-machine with a die at Addington before the time of your going to the works ?—I should be surprised if they were so, because I have never seen it.

29. You spoke of an improved tube-expander. Are you familiar with the Yarrow expander ?—Dudgeon's is the most used. I have never seen a Yarrow, and know nothing about it.

30. Are you familiar with the Wicksteed tube-cutter ?—Yes.

31. Is there any difference between your tube-cutter and that one ?—Yes, there is a considerable difference. The best of them that I saw was one with three little levers, and they would not do.

32. *Mr. Roberts.*] Are you in charge of the tools in the shop ?—Of the hand-tools, such as milling-tools.

33. You are not responsible for the lathes or planing-machines ?—No.

34. *Mr. Niven.*] Do they use all those appliances that you have mentioned at Addington and other workshops in the Dominion ?—Every one is in every-day use when required except the tube-cutter, and they want that badly, but I have a protection over it.

35. You made the first stay-tap that you ever saw in Addington ?—The first I ever saw in New Zealand.

36. Had you an opportunity of seeing in Cable's whether they had them or not ?—I was in Cable's four or five months.

37. They might have been there and you not see them ?—They might have been—locked up in a cupboard—but mine are quite original to me.

JOHN MAY examined. (No. 25.)

1. *Mr. Hampton.*] What is your present employment ?—Blacksmith at Addington.

2. What is your rate of pay ?—Ten shillings and sixpence per day.

3. How long have you been employed at Addington ?—Twelve years.

4. What other experience have you had as a blacksmith ?—I was in Nelson twice, in Wellington two or three times, and also in Sydney. I worked in the Anchor Foundry twice, Cable's twice, Luke's twice, and also in the Soho Foundry in Sydney.

5. How did you find the discipline and work at Addington compare with those of the other places in which you have been employed ?—I am quite satisfied that Addington is just as hard a shop to work in as any other shop. Mr. Cole expects his men to turn out a fair day's work, and if they do not they know about it.

6. Mr. Cole mentioned yesterday something about your having introduced some new appliances in connection with your work ?—I have introduced several. One thing in particular is a connecting-rod with the switch-boxes for points-and-crossings work. They used to do eight of these a day, and after I invented this tool we did forty a day. It has been a big saving to the Department, so the

foreman told me. They have used it ever since I brought it under the foreman's notice. Also riser-plates on the 70 lb. rails. I invented tools for that for doing away with measurement. A man does three at a time now. He puts them down, and they are finished without measurement at all, and they are always correct. Other labour-saving tools were for making bolt-washers for 70 lb. rails and union nuts, the latter of which I devised in conjunction with Mr. Cole. Mr. Cole invented another valuable tool in connection with switch-rods. Before Mr. Cole came there these rods were made on the anvil, and a man would make one set a day: I think we can make ten sets a day now. This tool is in use every day. If a blacksmith at Addington wishes to bring a tool forward Mr. Cole tries to help him as much as he can. Points-and-crossings work is going out at half the cost before Mr. Cole's time, for the reason that Mr. Cole listens to us and allows us to have our suggested tools made. Another tool I invented was one for bending box-rods. Formerly these were made on the anvil, but with my tool they are bent in a second. The Department has had the use of these tools ever since I brought them forward, and I have never been rewarded so far.

7. You do not feel encouraged to bring any more forward?—I have two more which I know would be a big saving. I suggested one to the foreman, and will go on with it. I also suggested another idea in connection with the rods, and Mr. Clarke complimented me on it and Mr. Richardson also, the latter saying that he would have the drawing sent to Wellington and see if the Public Works Department would approve of it. It will mean a saving of £7 on each job.

8. Is it an alteration in the style of the rod?—It is an alteration in the design. Six months ago they wanted to get 56 lb. points and crossings cheaper than they were then doing. Mr. Cole asked me if I could suggest anything, and I said, "Yes: in 9 ft. switches I can do away with half the cost if you like to give me the opportunity." I brought up the drawing next morning, and he had a copy taken and told me it would be carried out. I have not heard any more about it.

9. Have you thought about these things outside your working-hours?—As for "thinking" in the Addington Workshops, I have quite enough to think about in my ordinary work.

10. The Government have your services not only in the daytime but also when you are at home?—Yes.

11. They only pay you, for eight hours and three-quarters, an ordinary workman's wage?—Yes.

12. *Mr. Roberts.*] Do you ever find that new processes are originated by the foremen of departments or the Manager in Addington at any time, or has it all been left to the workmen?—No, I have just referred to what Mr. Cole has done. I have not had time to run about the other departments.

13. You would know from common knowledge in the shop whether improvements were made by the management?—I know that since Mr. Richardson came there there has been a difference.

14. He has introduced things himself?—Yes, in the points-and-crossings department he has introduced a good many improvements.

15. It is not all left to yourself and Mr. Sloane?—Oh, no! I do not wish to take credit for the whole of it.

Decius Starbuck Turner examined. (No. 26.)

1. *Mr. Hampton.*] What is your present position?—Gasfitter at Addington.

2. How long have you been there?—Twelve years at the works; eleven years in my present position.

3. What other places have you been in?—I served the biggest part of my time with the Midland Railway in England. I have also worked in paper-mills in New Zealand.

4. How does the discipline and work at Addington compare with other places in which you have been?—I have worked as hard in the Addington Workshops as anywhere.

5. In connection with your work as gasfitter, have you introduced any new ideas?—Yes.

6. Will you give the Commissioners a rough outline of the improved appliances you claim to have brought into use?—I made an improved pipe-bender, which saves a lot of labour in getting in and out of the pit. I fitted up the first Westinghouse brake gas and water service, and received no remuneration for it. There has been no accident or fault since I have been on the job. I have been on gas for eleven years.

7. Did you find it difficult work?—No, I worked on the first brakes put in in the Old Country.

8. It was left to your own initiative to fit up this system?—Yes, there was no one to show me.

9 Is there any other improvement you are responsible for?—I introduced a water-gauge for testing the water-pressure of the lamps in our carriages. I have also put forward a nipple which will do for either a 25- or a 50-candle-power mantle, and that is being given a six-months trial, and has proved satisfactory, I believe. Another little tool of my invention is a steatite-closing tool. I have a revolving tool and a hand-tool which closes the steatite by a little pressure on the nipple. I do not desire to say anything more at present about these things, because my case is now under the consideration of the officers, and I do not know how it is going to pan out.

10. Have you given a good deal of thought to these things outside of working-hours?—Yes, I do all my important working-out in the evenings.

11. You would like to see some method of recognising the work of men who show special ability?—Certainly.

12. The present system does not give enough encouragement?—No. If more encouragement is given there will be a better class of men to deal with.

13. *Mr. Roberts.*] You said a moment ago that, if greater encouragement were offered for original work on the men's part, the Government would have a superior class of men to deal with. Do you mean that a superior class of men would be attracted to the shops?—I mean that it would be a general advantage if men were encouraged to use their brain-power in the direction of bringing things forward. At the present time a man gets no encouragement.

MONDAY, 29TH MARCH, 1909.

Mr. T. RONAYNE, General Manager of Railways, re-examined. (No. 27.)

1. *The Chairman.*] It has been stated by a witness (the Hon. Mr. Jenkinson) that he has obtained from you concessions for railwaymen without their knowledge. Is this correct?—Mr. Jenkinson saw me on several occasions. He made certain suggestions regarding concessions to boilermakers. In some cases they were considered reasonable and were given effect to.

2. The same witness has stated that the Workshops foremen are robbed of full power by the Classification and Superannuation Acts and by the existence of the Railway Appeal Board. Do you consider this to be the case?—Foremen have power to suspend men from duty. They have not got the power to dismiss. Their position regarding the Classification Act as defined by Mr. Jenkinson is not quite understood. Every year each man in every workshop has his position reviewed. By way of illustration, say a boilermaker's work and value are being dealt with—the foreman boilermaker, the Workshops Manager, the Locomotive Engineer, and the Chief Mechanical Engineer sit as a board, and his claims for an increment or promotion are discussed and fixed for the D.–3.

3. Do I understand from you that there is a board that is cognisant of every man's position?—I may call it a "board." It is practically a board. It is the usual practice in all departments. The Maintenance Branch and the Traffic Branch follow precisely the same course which I am now illustrating as pertaining to the Locomotive Branch. The decision of the board, being duly certified to by each member of the board, is in due course forwarded to me, and if the recommendations are in accordance with the Act they are given effect to. The recommendations vary in character. In some cases the man's pay may be reduced, or he may be considered unfit for retention in the service. Should a man be retired or reduced in pay, assuming in all cases that he is on the permanent staff—not a "casual" hand—and a contributor to the Superannuation Fund, he may go to the Appeal Board for redress. Should he do so, the Department would probably call the foreman as a witness to justify his action and give reasons for his recommendations. In general practice it is found that foremen do not shirk their duty in this respect. It is possible that a foreman may recommend a man and overlook his deficiencies rather than appear before the Appeal Board, but, with the close supervision which is exercised by the Workshops Manager and the Locomotive Engineer, such a contingency I consider a very remote one and not likely to occur.

4. Statements have been made by witnesses alleging inefficiency in what is known as the staff system. Will you describe this system, and give your experience of its working, and the reasons for its adoption and retention?—To a certain extent I have already described the system, but I will give it in a more elaborate and lengthy form:—

In order to remove any misapprehension that may exist as to the necessity of concentrating the staff arrangements in connection with the Railway Department as a result of the statements made by Mr. Jackson when giving evidence before the Board, it will be as well to outline the system and the reasons which made its adoption absolutely necessary.

It was the practice for many years to allow officers in charge of districts, Workshops, and large stations at which a number of men were employed to engage, on their own responsibility, any men who were required to fill vacancies that occurred on their respective staffs. It was, however, found that this system did not work satisfactorily. Men who were considered unsuitable for employment in one locality would not infrequently go to another and be taken on without proper inquiry being made as to their qualifications and eligibility. This resulted in there being no properly recognised, well-defined standard. The same difficulties were found to exist in connection with the retiring of men, or their punishment for offences committed against the regulations, or dereliction of duty. Some officers went to the extreme and inflicted severe penalties, which, in many cases, were not justifiable and were out of all proportion to the offence committed. Others again took an extremely lenient view, and passed over in the lightest manner grave breaches of the regulations which should have been met by severe punishment, and in respect to which dismissal would, in some cases, have been justifiable. As the Railway business expanded and the staff increased it became more and more apparent that this system of engaging and dealing with men for offences committed against the regulations could not be satisfactorily followed, and it was essential that a standard governing the admission of men into the service should be set up, and a proper system adopted for the general control of the staff throughout the Dominion. The larger the staff the more necessary it became to alter the system in such a way as to insure the whole of the regulations governing the admission of the staff into the service being properly carried out. In connection with this I may say that, the Superannuation Act having been passed, it became more necessary than ever that the qualifications of persons joining the service should be very severely criticized. As long ago as 1889 the staff appointments were practically concentrated at the Wellington headquarters, and since 1896 they have been governed by the regulations made under the Government Railways Classification Act. All applications for employment are duly recorded, and applicants, in order to be eligible for permanent employment, must be of certain age, able to pass medical test, be a certain height according to age, have certain educational qualifications according to the positions they are to fill, and, if tradesmen, possess the necessary degree of expertness at their calling.

The Workshops staff comprises three sections—viz.,—

(*a.*) The permanent staff.

(*b.*) Term and regular casuals—that is, men who have made application for employment in the ordinary course in accordance with the regulations. These men are engaged for certain periods according to the amount of work that is available or in sight, and, if they are eligible and satisfactory in every respect, are employed in order of application, and may ultimately be attached to the permanent staff.

(*c.*) The emergency casuals—that is, men who are taken on to meet sudden demands for day to day or hour to hour, and whose employment may last for a longer or shorter period according to the exigencies of the Department. The engagement of these men is made by the responsible officer in charge of the Workshops—the Workshops Manager at Addington, for instance, may employ emergency labour. Such men, if suitable and satisfactory in every respect, not infrequently ultimately become members of the permanent staff.

In filling vacancies on the permanent staff the casuals or others whose applications have previously been recorded, and who possess the necessary qualifications, are first considered, and, if eligible, are put on the probationary staff. Their retention or otherwise depends entirely on the manner in which they comport themselves and carry out their respective duties; and in regard to this the Locomotive Engineer, or the Workshops Manager, or foremen immediately in charge of the men concerned are the judges of the men's qualifications and capabilities, and are expected to promptly report to the General Manager as to whether the men are suitable or unsuitable for retention. Men whose work is reported as being unsatisfactory are not retained.

In respect to filling vacancies for casuals, it is the practice to supply officers on whose staff the vacancies occur with the names of a number of men who, by reason of their application, are entitled to priority in regard to employment. This is done for the purpose of avoiding any delay that might arise in the event of No. 1 man not being suitable. It is expected that the local officer will have sufficient initiative to take steps to at once communicate with as many of the applicants as he considers advisable, and arrange for them to present themselves for his inspection, selecting the man or men who are the most suitable to fill existing vacancies.

It is obviously the duty of the local officer, in communicating with the applicants, to fix a time within which they shall present themselves, and to make his selection from the men who respond within the given time. If the first man selected does not turn out satisfactorily, the district officer has to advise Head Office, and communicate with the other men whose names remain on his list and select from these. Where the lists become exhausted the local officer is given authority to select eligible local men who offer themselves for employment, *and has an entirely free hand in that matter.*

With regard to additions to staff, it cannot be expected, nor would it be in the interests of the Department, to blindly approve every requisition for staff that emanates from a local officer. The General Manager, who is responsible for the general administration and the expenditure of the Department, must necessarily exercise his authority, and not infrequently decline to authorise additional staff when, in his judgment, the supplying of the same would unwarrantably increase the expenditure without sufficient cause. It is the almost invariable practice to confer with the Chief Mechanical Engineer, as head of the Locomotive Branch, in respect to the employment of additional staff or the filling of vacancies that occur in the various workshops under his control, and it is not an infrequent happening for the Chief Mechanical Engineer to decline, for good and sufficient reasons, to recommend the requisition of the local officer for additional staff. In such cases the staff is not supplied. In special cases, however, where the local officer renews the application and gives a good and sufficient reason for so doing, the necessary arrangements are made to fill the vacancies if circumstances warrant.

Recently a new boring-machine was supplied to Addington, and, although there are a large number of competent turners in the shop, an application was made to take on a new man to work the new machine. This application was properly declined, and instructions given that a competent turner in the workshop should be placed in charge of the machine. If it is contended that, whenever a new machine or appliance of any kind is installed in Addington or any other workshop in the Dominion, a new man is to be taken on to work the same, it follows that as soon as an old machine is displaced by a new one the man who has been working the old appliance, and who may be thoroughly competent and in every respect fitted to take charge of the new machine and have been in the service for many years, would have to be dispensed with, because there was no opportunity of further utilising his services. It is manifest that a position of this kind would be utterly untenable. In connection with this matter I have had recommendations to dispense with a few turners in Addington Workshops which fully justified the course I have indicated.

Regarding the punishment of the men for breaches of discipline, unsatisfactory work, or general misconduct, the various officers in charge, as stated at the outset, take different views as to the gravity of the offence. If, therefore, a free hand were given them, offences of a similar nature would be met by widely divergent punishment according to the view taken by the district officer. It is therefore essential that the power of meting out punishment should be in the hands of the General Manager. In this connection I may say that all offences are dealt with by the Punishment Board, who make their recommendations to me. I invariably agree with the recommendations, but there are exceptions. The Punishment Board is constituted in this way: The Chief Mechanical Engineer, the Chief Engineer, the Chief Traffic Manager, and the Stores Manager. The Chief Accountant was a member of the Board, but it was considered that he could no longer hold that position, as he had been appointed by the Department to represent them at the Appeal Board cases. You can quite understand that it would never do for an officer who was meting out punishment to deal with those cases afterwards when they came before the Appeal Board.

When a member of the service commits an offence the local officers are expected to obtain a detailed report of the facts of the case, and submit same with their recommendation to the General Manager. Frequently the details given are not such as, in the opinion of the General Manager, would enable the offence to be properly adjudicated on, and further information has in such cases to be obtained. When it is considered that the full facts have been obtained, the case is referred to the Punishment Board for a recommendation, and the Board's recommendation is finally reviewed by the General Manager, who confirms the recommendation or otherwise as he considers the circumstances

warrant. The view taken by the Head Office is that no member of the service should be punished unless the offence with which he is charged is proven. Where the proof is clearly established, then such punishment as is, in the opinion of the General Manager, suitable to the offence is meted out.

The view expressed by the Locomotive Engineer, Addington, that foremen and other local officers should have the power to dismiss or otherwise punish men is not concurred in, for the reason that there would be no uniformity or equality of punishment for similar offences. This has been established beyond any doubt as the result of years of experience with a small staff, and the difficulty would be greatly accentuated in dealing with the large staff now employed in the service.

The statement of the Locomotive Engineer, Addington, that neither he nor the Workshops Managers nor the foremen have power to engage men has been made under a misapprehension. As I have indicated above, the Locomotive Engineer is given authority to select, from among the applicants whose names are submitted to him, men who are, in his opinion, suitable and qualified to fill the vacancies that are likely to occur on the permanent or casual staffs, and when the list is exhausted he is from time to time given authority to select from among the local men offering suitable men for positions on the casual staff, and has an entirely free hand in the matter of the selection of the emergency casuals as required. No doubt he in turn delegates this authority to the Workshops Manager and those foremen in whose judgment he has confidence.

Respecting the question of the trial to be given to the men on either the permanent or the casual staffs, the local officer has an entirely free hand, and is allowed to exercise his judgment untrammelled by any restriction. Clause 36 of the "Locomotive Code" provides specifically that "Incompetency on the part of persons selected for employment, either permanent or casual, must be reported at once." Attention has also been pointedly directed to the matter by circular instruction, which reads,—

"Some officers appear to be of the opinion that an incompetent person must be allowed to serve to the end of his probationary period before his services can be dispensed with. This is erroneous, and detrimental to the interests of the Department and the men concerned. Any probationer who fails to give satisfaction in the discharge of his duties, or shows evidence of being unsuitable for retention in the service, should be notified of the fact, and warned that, failing improvement, his retirement will be recommended. Should he fail to profit by the opportunity, particulars are to be forwarded to the Head Office with the recommendation of the district officer."

It has been found necessary to repeatedly direct the attention of officers to the various instructions governing the employment of the staff and to the necessity for a close adherence thereto, but, notwithstanding this, the Head Office has to exercise constant vigilance to prevent irregularities in connection with staff matters.

In the course of his evidence the Locomotive Engineer, Addington, stated that of the names given him it would be found that the first man was dead, another had left the district, and so on. The departmental records do not support the first statement. Since 1906 the names of 270 casuals have been given to the local officer for employment at Addington. The applications of some of these men had been on the books for a considerable time, and none of the applicants had given notice of any change of address. One hundred and fifty-two men were appointed, 4 had left the district or the Dominion, 23 had not notified change of address, 49 declined appointment, 8 were rejected as unsuitable, 7 were ineligible, none were dead. This leaves 27 in respect to whom the Head Office has, up to the present, received no notice as to how their applications were dealt with by the local officer.

Since July, 1906, 258 casuals have been engaged at Addington. The great bulk of the men appointed are those whose names have been supplied from Head Office roll of applications for employment. When the roll was exhausted the local officer at Addington was authorised to himself select men. The following are particulars of the men engaged and those of them who were dispensed with :—

Number appointed.	Occupation.	Paid off as unsuitable.		
		Number on List supplied by Head Office.	Number selected by Locomotive Engineer or Workshops Manager.	Total.
38	Fitters	2	1	3
20	Boilermakers	..	2	2
12	Blacksmiths	..	..	..
18	Ironmoulders	..	1	1
1	Brassmoulder	..	..	..
2	Patternmakers	..	..	..
15	Turners	..	1	1
2	Tinsmiths	..	..	..
7	Trimmers	..	..	..
5	Carpenters	..	..	..
18	Machinists	1	2	3
19	Strikers	..	..	..
101	Labourers and junior labourers	1	..	1
258	..	4	7	11

From this it will be seen that of the eleven unsuitable men only four were included in the list furnished by the Head Office, and seven were from among the men in respect to whom the local officer had had an entirely free hand. This does not indicate that the men whose applications have been dealt with in accordance with the regulations of the Department have been of an inferior class, or that the method under which their appointment is arranged is detrimental to the interests of the Department.

With respect to the opinion that has been expressed as to the probationary period for apprentices, it is only necessary to point out that for many years apprentices were indentured immediately they joined, but after mature consideration it was decided, in consequence of some of the lads who had been taken on for certain trades afterwards manifesting a desire to be transferred to other trades, that it would be in the interests of the Department and the lads to have a probationary period during which it could be ascertained whether they had a predilection or otherwise to the trade to which it was proposed to apprentice them.

Since 1905, 203 lads have completed their apprenticeship with the Department. Of these, nine have been retired, and 194 still remain on the staff. This does not indicate that the probationary period is insufficient. I should add to this that when an apprentice has completed his time—it is usually five years, sometimes five years and three months—his services are reviewed, and if he has attended to his duties and made satisfactory progress in every respect, and is described as a first-class workman, he gets the minimum rate of pay for journeymen—9s. 6d. per day. In some cases where a boy has been apprenticed to the trade of moulding he does not like the work. As a matter of fact, every boy in New Zealand wants to be an engineer, and that is a fitter, and there is a natural disposition on the part of lads to become fitters. In some cases we do transfer them from one trade to another, and if a boy who has been apprenticed, say, to the carpentering for one year, and serves the balance of his time (four years) as a fitter—in certain cases they do not turn out satisfactorily. But in no case do we retain any boy, except under exceptional cases, beyond the apprenticeship period unless he is a first-class workman. There are cases in which these apprentices, who have perhaps spent a year in another trade, have not turned out satisfactorily, and as a rule we dispense with their services. The Department does not encourage transferring from one trade to another, because it recognises that five years is none too long for a lad in which to learn the trade of fitting.

Of 234 tradesman at Addington, 175 are in the first grade, receiving the pay of 10s. to 10s. 6d. per day; 59 are in the second grade, in receipt of 9s. 6d. per day. Of these 59, 46 are lads who have served their apprenticeship at Addington, but who, on account of their service, have not yet worked through to grade 1. Of the remaining 13, 7 are sailmakers who, prior to April last, had never been recommended for a higher pay than 9s. 6d. per day. This leaves only about six tradesmen in the second grade who did not start in the Department as apprentices. Machinists, strikers, and holders-up number 122, only 36 of whom are in the second grade. Of the total number of tradesmen, 75 per cent. are in grade 1, 25 per cent. in grade 2. Of the machinists, &c., 71 per cent. are in grade 1, 29 per cent. in grade 2. Of the casual tradesmen, of 75 men, 94 per cent. are in grade 1, 6 per cent. in grade 2.

As the fixing of the grades and pay of the respective employees depends almost entirely on the recommendation of the local officer, and he has recommended fully 75 per cent. of his men to be placed in the first grade and receive pay accordingly, it must be conceded that the present system of appointing the staff has given highly satisfactory results. It certainly cannot be contended that it has resulted in a poor class of labour being employed without impugning the *bona fides* of the recommendations made by the local officer as to the grading and pay of the men concerned.

The members of the Railway staff throughout the whole of the Dominion have to be dealt with fairly and equitably, and strictly in accordance with the Classification Act and the regulations made thereunder. The controlling of a body of some 13,000 men is a matter of very great difficulty. It involves a mass of detail-work that can only be perfectly understood and fully realised by those who are daily dealing with the matter. Divisional officers concern themselves only with those matters that come under their immediate jurisdiction. They do not look at the matter from the broad point of view that has to be taken by those who are controlling the whole staff, and who are responsible for the general working of the system as a whole, and for seeing that, as far as is humanly possible, each unit of the service is dealt with fairly and equitably, and from a common standpoint, and on his merits. The more intimate the knowledge of the difficulties that have to be contended with, the more apparent the necessity for directing the whole of the staff operations from the Head Office becomes. There is no superfluous machinery. Every instruction that is in operation has been inaugurated for the purpose of securing efficiency, and a proper control of the staff and the expenditure by the General Manager who is responsible in respect thereto, and the statistical figures that have been quoted above in respect to the staff at the Addington Workshops alone amply demonstrate the fact that excellent results are obtained under the existing arrangements.

The following figures, which show the wages expenditure in connection with the Addington Workshops during the past five years, are a clear indication that all reasonable requirements have been met, and in the instances where the views of the local officer have not been concurred in with respect to the granting of increases in staff there has, in every case, been a good and sufficient reason for the action taken :—

Year.	Wages Expenditure. £
1905	58,149
1906	59,728
1907	67,876
1908	74,663
1909	88,393
Total	348,809

5. *The Chairman.*] I suppose, in dealing with the staff, you have some system of being assisted by some body of men?—There is a properly equipped Staff Office at Wellington. There is a special officer in charge of the staff, and he is assisted by the clerks who have had experience in such matters. The office is a properly organized one.

6. It has been stated that requisitions to administrative heads have not been given effect to. We presume that such requisitions are considered and dealt with by the administrative heads on their merits?—All requisitions receive careful consideration. They are dealt with by myself and the Chief Mechanical Engineer. They are not always acceded to, and for the following reasons: (1.) They may be considered unnecessary or extravagant. (2.) The requisition may be desirable, but funds are not available. (3.) In all cases where it is shown that the request is reasonable, and that compliance with same would expedite and reduce the cost of manufacture, the requisitions are complied with, subject, of course, to the necessary funds being available.

7. It has also been stated that the recommendations from the local officers for the discharge of men have not always been acted upon. Do you desire to give the Board any information on that subject?—I think my general observations with regard to the staff have dealt with that to a certain extent. But we do get certain recommendations with regard to men which are not given effect to, and for very good reasons. Take a case in point: A man may have been seriously injured in the service. He is not capable of doing a very hard day's work, but the management consider that under special circumstances it would be doing a cruel thing to discharge that man, and an endeavour is made to find for him suitable light work—that would be one case where a Workshops Manager possibly might say, "Well, by keeping this man on, the cost of work is slightly increased." But we are simply doing what any right-feeling employer would do, and what is done every day in private work. Another case where his recommendations would not be carried out would be where the recommendations were not considered reasonable and not in the interests of the service. In every case in which a request is declined there are always good and sufficient reasons for not acceding.

8. We had some evidence regarding inventions and devices brought forward by workmen to facilitate the carrying-out of their work. Without expressing any opinion on the particular devices which have been brought under our notice, we should like to know, in the case of a deserving workman who has done something to facilitate his work, and which has been adopted by the Department, if there is any system by which his invention or device is brought under notice of the proper authorities, and the workman, if it is thought that he deserves it, rewarded?—Every workman who considers he has a claim on the Department for the invention of a labour-saving appliance is quite within his rights in writing to his foreman drawing his attention to the fact that he has designed or invented this labour-saving appliance, and requesting him to forward the matter to the Locomotive Engineer, who will transmit it to the Chief Mechanical Engineer, who in turn will forward it to me. This officer, after going into the merits of the invention as a labour-saving device, should make a recommendation to me as to whether it is deserving of special recommendation. Quite a number of cases from time to time are dealt with in that manner, and they have received recognition. As a practical man, Mr. Chairman, you will understand that there is a large number of devices submitted to the Department which are by no means original, and, although they have not been in use in the New Zealand Railway Workshops, they have perhaps been in general use in other workshops. In many cases the Chief Mechanical Engineer is aware of the existence of these devices. We might take, for instance, the spark-arresting appliance. We were pestered from one end of the globe to the other. By some means, some years ago, it got into the English papers that the New Zealand Government had offered a reward of £3,000 for the invention of an efficient spark-arrester. Soon after it appeared we were flooded with designs of the most crude and impossible nature. It has toned down a bit now, after we have replied to hundreds and thousands of letters on the subject. Bonuses are granted from time to time to workers and others who introduce mechanical devices which are calculated to cheapen the cost of work. At the present time a workman at the Addington Shops has applied for a bonus—his device has been favourably reported on, and he has been granted a bonus of £10. The device is not original, but it was considered a reasonable thing to recognise the way in which he had adapted the tool for its special work. The matter stands there now, and we are making further inquiries into the matter. But in every case where it is proved to me that a man had introduced something which tends to cheapen the cost of work, I am always prepared to recommend the Minister to grant a special bonus. That is always the attitude I have taken up. But there are men who are paid for this class of work. As an apprentice, many years ago, I worked in the tool-shop, and spent six months there, and it was the work of the man in charge of the tool-shop to devise tools for doing special work, and he got no recognition for so doing—it was considered part of his duty. In like manner the Chief Draughtsman or the Chief Mechanical Engineer, in designing a locomotive, hits upon some happy idea which may make it more perfect; but he gets no special recognition for that. It is part of his duty. That is what he is paid for. Unless it is something very exceptional, there is no special recognition given to the First Division. It has been the invariable rule to recognise any special device which may be introduced by men in the Second Division. Possibly many of the devices which I hear about from time to time have never been reported to myself, and I may be ignorant of their existence, but in all cases where it is clearly shown that a device is of value, I am prepared, and always have been, to see that special recognition is given to the man.

9. *Mr. Hampton.*] You spoke of casuals being placed on the permanent staff from time to time. I should like to ask you, in the event of that being done, does the continuous casual time of that man count for superannuation purposes?—As a rule it does. I think I am correct in saying that.

10. In the event of one of these casuals being dismissed, say, by the hasty action of a local officer, he would stand to lose considerably in his old age?—The local officer has no power to dismiss.

11. But in the event of that power being given to the local officer ?—All the man would be entitled to would be the moneys he had contributed to the fund ; that is all he would draw.

12. Take a supposititious case. Say a man has been employed as a casual for five years, and local officers have the power to dispense with this man. That man, through, say, a hasty action of the local officer, is dismissed, but he afterwards shows that he was wrongfully dismissed, and is re-engaged—the whole of his previous time will be lost to him ?—Not if he is reinstated by the Appeal Board, and the Appeal Board's finding has the Minister's approval.

13. As a casual he would have no right to appeal ?—You are speaking of a casual appointed a permanent.

14. No ; before he is appointed a permanent ?—He would not be a contributor to the fund before he was appointed a permanent. He would not be a member of the service.

15. In the event of that man getting back to the Railway service ?—Oh ! you are referring to the break in casual service.

16. Yes : would that previous time count ?—Yes, if he was reinstated. He would be paid for the time during which he was suspended.

17. He would not be suspended. As a casual hand he would be straight-out dismissed ?—Oh ! of course, he has not got that power at the present time. But in the event of straight-out dismissal, if the Appeal Board said that the dismissal was a wrong one, he would be reinstated and would not lose by it.

18. He would have to use other ways of establishing his innocence than through the Appeal Board, for as a casual he has no right of appeal ?—As a casual, that is so.

19. Regarding these men who have brought about improvements from time to time, you said that they have applied to you for recognition : how long do you think it would take for a man to get a reply to such an application ?—It all depends. The receipt of the letter should be acknowledged in the ordinary course—that is, formal acknowledgment—and it should take some time to investigate the merits of the invention. It might take months. But he would get there ultimately if the appliance was proved satisfactory.

20. Supposing you were told that one man at Addington applied for recognition and got no formal acknowledgment for nine months ?—It may be possible, but I cannot answer for what the local officers do. I have no doubt, in a case of that kind, that the foreman would advise the workman verbally that he had forwarded on the letter. He might not have it in black and white, but he would be cognisant of the fact that the device had been forwarded.

21. Do you consider it possible that a man might have made application fourteen months ago and not yet got a definite reply ?—I am not aware of any such case.

22. Do you think it possible ?—All things are possible ; but it is very improbable.

A. L. BEATTIE, Chief Mechanical Engineer, examined. (No. 28.)

1. *The Chairman.*] Have you had any comparisons made of the cost of similar work executed at Petone, Addington, and Hillside ?—Yes, comparisons are regularly made when comparisons are practicable. I may state, for the information of the Board, that it is not always practicable to make comparisons as between Workshops, because they may be on different work; but when they are on the same work comparisons are regularly made month by month and on the completion of special orders. By way of illustration I will put in certain recent comparisons which I have made myself. [Return put in.]

2. What do you find is the result of the comparisons on a general average ?—The results, as a rule, run fairly closely. Sometimes one Workshop is a little ahead of another, but that is very often accounted for by local circumstances. In one case it was with regard to the cost of local materials. I have dealt with that rather more fully in my address which I propose to put before you. For instance, for local contracts in particular centres, the rates for the supplies of iron and steel, and so on, vary as between Auckland, Wellington, Christchurch, and Dunedin. So that we will suppose Newmarket obtained material from an Auckland contractor at a somewhat higher rate per ton than, say, Addington from a Christchurch contractor, that would naturally influence the total cost of the job, and where you notice from that return I have put in slight variations, in most cases those are due to local variations in the cost of material. But such comparisons are regularly made and regularly recorded. I may say that any considerable diversity which is not accounted for by variation in cost of material is investigated very closely, with a view to ascertaining the reason, and with a view to putting the thing on a better footing.

3. The Board would like to know what contracts for points and crossings have been carried out by the Dispatch Foundry, Greymouth ?—I have already put in all the information I have available with regard to points-and-crossings orders, and those go back to July, 1906. I have not anything antecedent to that. In that particular 1906 contract—which, I may say, was for points and crossings for the Public Works Department—the various tender prices are summarised in the return, and the Dispatch Foundry was a tenderer for supplies but was not successful. Prior to that date I have no information on the subject. I may say that the Dispatch Foundry has not made any points and crossings for the Railway Department for a great many years. I think I am right in saying that they did not make any for the Railway Department. I may also put in, in connection with the cost of Railway stock, a return which might be of interest to the Commissioners, showing the relative cost of importing certain LA wagons, having similar wagons built under contract in New Zealand by two different firms, and similar wagons built in our own workshops.

4. You have a system of accounting and cost-keeping with regard to work done in the shops. Do you find it satisfactory ?—So far as I am aware it is generally satisfactory. To anybody not acquainted

with the requirements it might appear possibly somewhat complicated. It is, however, the result of years of experience, and it is the result of very close application on the part of experienced accountants cognisant with the requirements of departmental book-keeping, and I think I am right in saying that the book-keeping of the Government service differs somewhat from the book-keeping of a private shop. For this reason: that the Government Departments have to furnish very elaborate reports at the end of each financial year. The Railway Department, for instance, has to submit a full Railway Report to Parliament each year, which is of a most exhaustive nature. The accounting system, as I say, is the result of very many years' experience on the part of our expert accountants, and, so far as I know, meets the requirements reasonably well. I have already supplied the Commission with a set of the accounts.

5. I think you have two X engines completed and running ?—Yes.

6. The Board would like to know the cost of manufacture ?—We have two completed, and six more in the course of manufacture. The third engine is ready for shipment—that is, it is practically completed, but it is not re-erected at Petone. The fourth X boiler is almost finished, and the rest of the eight are in a more or less forward condition.

7. You are unable as yet to provide the Commissioners with the cost ?—I have got the list here of the cost up to date for the wages and material for the engines proper, for the boilers, and for the smith-work; but that is spread over the whole eight, and the job-number for each of these items—engines proper, boilers, and smith-work—are three separate orders each for the eight engines. The quantity of the material imported for the purpose has been already charged to one or other of these job-numbers.

8. The reason you are unable to supply the particulars is that the batch of eight engines are being built simultaneously ?—Yes, and being dealt with as one batch.

9. One of the witnesses, Fitter Sloane, mentioned that he had been in the service some twenty-three years, and was still rated as a casual hand, although occupying the position of tool-room fitter. Has this service been continuous or broken ?—It has not been continuous. Fitter Sloane's statement was hardly complete. Fitter Sloane joined the service in 1887. In February, 1899, he voluntarily retired from the service to take up a position in the tramway sheds, thinking, so I understood at the time, that he was bettering himself. I know the circumstances. After going to that work in the tramway sheds for ten months, he came to Addington again and begged for a job. He had in the meantime discovered that he had not bettered himself. I remember the circumstances of his coming back. He was taken back into the shop, but on account of his age he could only come on as a casual. Prior to his leaving in February, 1899, he was a permanent hand, but after the break of ten months, necessarily, under the regulations, he could only join as a casual.

10. He was above age ?—Yes. He was over thirty-four years of age, which was the maximum age at which a man could enter the service with a chance of becoming a permanent employee. His break was at his own instance, and necessarily he came back as a casual, and as a casual he has remained since. I might add that quite recently there has been some idea of putting certain casual hands, entitled or deserving of it, on to the permanent staff under certain conditions, one of these conditions being that he must pass a doctor. I regret to say that in Sloane's case he was unable to pass the doctor, and therefore still remains a casual hand. I would like to add, as a matter of information for the Board, that Fitter Sloane is a very excellent workman, and we regard him as such; but, unfortunately, through his own action he broke his service, and has naturally had to suffer.

11. He suffers under two disabilities—one broken service and the other inability to pass the medical examination ?—Yes.

12. Can you tell us the reason for discarding the use of the drop-hammer at Addington ?—The reason, I understand, is that in the first place steam-hammers were put on to do work which the drop-hammer did previously; in the second place, the drop-hammer was in an inconvenient location. Now that the amount of stamping has got almost beyond the capacity of the existing steam-hammers to deal with conveniently, it has been decided to bring the drop-hammer again into use. It has been removed to a new site, and will be used regularly for the purpose for which it was designed, as a supplementary tool for stamping purposes.

13. Do you prefer steam-hammer stamping to drop-hammer stamping ?—That is a question that could be answered this way. It depends very largely on the nature of the work. There are many jobs which I would rather do under the steam-hammer, and others which I would rather do under the drop-hammer. It is very largely a question of the work.

14. Are you satisfied with the present arrangement of power-supply at Addington ?—Not at all; and in my address to the Commissioners I have dealt with that somewhat fully on that account. It has been under consideration repeatedly to rearrange the Workshops machinery, and to either electrify or to group and drive by a suitable producer-gas apparatus. Up to the present, however, the large outlay involved has precluded any action.

15. What is your opinion as to the probable rate of increase or otherwise in the future of repair and new work at Addington and in regard to the railways generally ?—Of course, with regard to the Hurunui–Bluff increase—I give it merely as my own personal opinion—the ratio will be comparatively slow. That I base on what I read with regard to the gradual extension in the settlement. So far as the North Island is concerned, if the extension of settlement goes on there as has been predicted by many people who should be in a position to give a sound opinion, I should imagine there will be a lot of work yet to be done at Addington for the North Island Railways in the matter of building engines and railway stock—more than the North Island can cope with on its own account. But, as for the rate of increase, I would not dare to put a definite value to it.

16. I suppose you could give the retrospective increase ?—I could give you a portion of it, and will have it prepared for you.

17. The General Manager said he had heard that Price Bros. stood to lose on their contract, and believed that you were prepared with a statement to that effect ?—That is another matter I have dealt with in my address.

18. It has been stated by a witness that discontent is, or was, rife at Addington at a recent date. Do you know anything of this discontent ?—I know nothing of it, and, further than that, from inquiry I have made, I think the discontent, if there has been any at all, has been of very, very small dimensions. I think it has arisen simply from the fact that certain allowances were made by Act to men for specially skilful work, and at the beginning of the granting of this allowance certain men profited and certain others did not, and those who did not profit naturally made application for the consideration of their particular claims. These claims were considered, and were found to be justly based, and were dealt with satisfactorily. I believe that is the only scintilla of discontent that existed there, and I believe it was made much more of than it had any right to be.

19. What is your opinion of the working of the Classification Act ?—I think that has been very completely dealt with by the General Manager, and I do not think I can add any views of value beyond that. Mr. Ronayne has explained the matter in a way that leaves very little for me to say.

20. It has been stated that a scheme for electrifying Addington shop was prepared some years ago. Has this dropped out of view ?—Not at all. I have dealt with that in my address.

21. What is your experience of the working of the staff system, especially as regards the control of men by foremen and managers ?—I have no direct experience. I do not deal with the staff other than to recommend to the General Manager on the matter of numerical strength. Supposing the Newmarket Workshops, by reason of a temporary pressure of work, wanted, say, five blacksmiths and five strikers temporarily, after the application was made by Newmarket it would come to me for my recommendation. I might and should be in possession of the necessary knowledge as to what the state of work was in every other Workshop. It might so happen that at that particular time Petone, on account of certain work being almost completed, was in a position shortly to spare five blacksmiths and five strikers, and therefore, instead of taking on five or ten new men at Newmarket, I should recommend the General Manager to arrange to transfer the work to Petone, where they already had a staff qualified to deal with it. We have over a thousand men in our combined shops, and it does not always follow that, because one shop is not able to do one lot of work with its present hands, that work cannot be satisfactorily undertaken in one of the other shops without an increase in the hands employed.

22. You have not found that the power of foremen and managers was weakened in any way by the existence of the staff system ?—The matter has not been reported to me. It would not be reported to me in any case. Matters dealing with the staff are reported to the General Manager's office, and would not come under my review.

23. It was not a matter of your own observation, when Locomotive Engineer, that the staff system had the effect of weakening the control of foremen and managers ?—It is the duty of foremen to report immediately any deficiency in the staff under them. If it is their duty to report it, and they do not report it, then they are blameworthy.

24. We heard that gear had been taken off engines at Addington to supply Messrs. Price Bros. Can you tell why this was done ?—Yes. Messrs. Price Bros.' contract to build locomotives provided that they could purchase certain portions of the engines from us, we undertaking to supply these on certain dates, or, at any rate, as required. It has happened that by reason of the non-arrival of certain material—owing to delays in London or in transit; in one case by reason of the loss of a ship—we have had to take gear from our own engines in order to keep our bargain with Price Bros.

25. Are these fittings supplied at specified rates ?—They are supplied at rates enumerated in the plans and specifications. For the information of the Commissioners I have had these extracted and summarised in a convenient form. [Summary put in.]

26. Are those rates found to be payable rates ?—Yes.

27. A charge of 15 per cent. is made to cover fixed or overhead charges at Addington. Can you tell us how this sum is arrived at—what it includes ?—Yes. In that connection I might say that that 15-per-cent. rate was fixed on the recommendation of a special Royal Commission set up in 1876 to deal with Railway matters, and has been in practice from that time to the present. The items charged against this 15 per cent. are as follows: Watching shops; storeman's wages; repair and Workshop engines; general charges, Workshops (includes cost of upkeep of machinery and tools, coal for smith's fires, and pumping water); fire-brigade practice; foremen's wages; jury and witness pay (amount received by employees is collected and credited to this order); time of employees attending Appeal Board; stationery for Workshops; holiday pay; contingency vouchers; wages of shunter, Addington Yard; apprentice accident pay; apprentice sick-pay; apprentice holiday pay; clean up shop-yard; pack and unpack effects of Workshop employees transferred; work Workshop steam-crane. I might explain that if an employee goes away as a witness or as a juror and is paid a fee, and at the same time receives his salary during the time he is away, when he comes back he pays in the amount he has received by way of fees.

28. Are blacksmiths' steam fires not a charge against the shop ?—No. We make a special charge in certain cases, but usually for repair-work and small work it is impossible to debit the coal against each individual job, and it is charged against the smith's shop. In specially big jobs the coal is charged to the order-number.

29. Does experience show that this 15 per cent. is sufficient to cover all this ?—Our experience is that it does. I have in my hand particulars for several years back, and in each case, and up to the present time in this current year, we find that the amount has fully covered the charges against the particular item. I might possibly, for the information of the Commissioners, give a little information which I have in my possession with regard to the practice elsewhere in regard to railways. I might point out that the practice of railways is not necessarily on all-fours with that of private shops where

profit-making is the primary consideration. The Midland Railway, England, charge 10 per cent. on labour only. I think it is clear, of course, to the Commissioners that our charge is 15 per cent. on labour and 15 per cent. on material, and, assuming that the labour and material were approximately equal, that would be a total impost of 30 per cent. The Midland Railway, as I say, charge 10 per cent. on labour, and nothing on material. The Great Northern Company, England, charge 20 per cent. on labour, and nothing on material. The C.P.R. Company charge 10 per cent. on labour. The Grand Trunk, Canada, charge nothing either on labour or material. New South Wales Railways charge 32½ per cent. on labour, and nothing on material. South Australian Railways charge 30 per cent on labour, and nothing on material. The Queensland Railways charge varies from 12½ per cent. to 17¼ per cent. on labour, and nothing on material. The Victorian Railways charge is 20 per cent. on labour, and nothing on material. They also charge 1 per cent. depreciation on material. I do not understand what it is, but it is 1 per cent. additional to their 20 per cent. on labour. In addition to our 15 per cent. on labour and 15 per cent. on material, we also charge 4d. in the pound to cover the handling of stores.

30. That is what you call Stores commission ?—Yes; that covers the Stores cost of handling material.

31. I do not quite follow you: that 15 per cent. on wages and 15 per cent. on material is 30 per cent. on the job ?—I said that if both labour and material were equal. If the cost was £500 for wages and £500 for material, that is 30 per cent. on £1,000. That is how I figure it out; I am open to correction.

32. I think what you meant was that if labour and material were equal, and you charged 15 per cent. on labour and 15 per cent. on material, that would equal a charge of 30 per cent. on labour ?—Yes. That is really what I had in my mind at the time.

33. A witness made a statement that Addington shops lost eight hours per month on belt-replacement. Do you think that is correct ?—No, I have looked into that since the evidence was given, and I find it is not borne out by facts. There is very little time lost—certainly nothing equal to that amount, and the statement was made, you will remember, in connection with some suggestion about a belt-shifter. Belt-shifters were tried during my own apprenticeship, but up to the present time they have not been found to be a very great advantage except on very small belts. The time which would be lost at Addington, and to which the witness referred, I presume, was due to the main driving-belts. I take it that a belt-shifter, as usually known, could not be used for putting on a main driving-belt. Occasionally a main driving-belt might be carried away, and would cause a stoppage, but that is a very infrequent happening. I do not think the facts bear out the evidence you have before you.

34. *Mr. Hampton.*] When you were Locomotive Engineer at Addington did you have any difficulty in connection with the dismissing of men ?—It is a good many years ago. I cannot recollect if I had any difficulty. I have no case in my mind.

35. It has been suggested during the inquiry that local officers should have greater powers with regard to the dismissal of men. Do you think that necessary ?—I do not care to express an opinion definitely. Personally I had no difficulty when Locomotive Engineer at Addington ten years ago.

36. It has been suggested that the time taken in dismissing men when work runs out is rather lengthy. You did not find that the case ?—I have no recollection of finding it the case.

37. Is it the case that there are men at Addington who have been there as long, say, as eleven years, and have passed the doctor, and are still casuals ?—I cannot tell you. I do not know. It does not come under my review.

TUESDAY, 30TH MARCH, 1909.

A. L. BEATTIE, Chief Mechanical Engineer, examination resumed. (No. 29.)

1. *The Chairman.*] The Commissioners desire a little more information on the return handed in yesterday. We are not quite clear what patterns are charged to ?—Patterns for new work are charged to the job.

2. We understood that patterns were manufactured to one order-number ?—Not for new work—they are charged to the job. For example, the patterns for A class engines were charged to the first batch.

3. Ordinary patterns—are they charged against the Workshops commission, or generally ?—Against commission—that is, for stock patterns. Patterns for new work are debited against the new-work order.

4. The men's accident pay, what is that charged to ?—Against the Workshops.

5. The Government make contributions to the Superannuation Fund. As far as the workmen in the Workshops are concerned, is any portion of the contribution charged against the Workshops ?—I am not aware that the Government make any contribution. It is a Government guarantee. In the meantime the fund has been more than self-supporting from the contributions of the staff. The Government's liability is merely a guarantee that in the case of any deficiency—which has not occurred, and which we hope will not occur—the Government will contribute.

6. What is the Workshops Manager's salary charged against ?—Against the Workshops.

7. And his staff ?—Yes. All salaries are charged against the Workshops commission with the exception of the district officers'.

8. New machinery ?—In certain cases new machinery is charged against capital.

9. That is, the Capital Account, and in no way charged against the Workshops ?—Charged against capital, I think.

10. The Workshops Capital Account is the general Railways Capital Account ?—Yes. There are quite a number of lesser appliances which are charged against the Workshops Commission Account, but any large outlay is charged to capital.

11. Is any allowance made for depreciation of machinery and charged against the Workshops ? —There is no Depreciation Fund ; everything is maintained, and the cost of maintenance is charged against the Workshops.

12. Rent of buildings ?—No rent is charged.

13. Repairs of buildings ?—I could not myself tell you how the cost of repairs is dealt with. All the repairs are done by the Maintenance Branch.

14. At all events, there is no charge against the Workshops ?—Not as far as I am aware

15. I suppose something is placed to the depreciation of buildings ?—Yes, I think it is.

16. Is there any insurance on plant and buildings ?—Not as far as I am aware.

17. It is not charged against Workshops, at all events ?—No.

18. Stores, oil, waste, &c. ?—All that is charged against the Workshops.

19. Comes out of the commission ?—Yes.

Representatives' Addresses.

Mr. Hampton, Representative of the Workshops Employees.

I am very pleased to be able to say that my duties on this occasion, as the workers' representative, have been very light indeed. No attempt has been made by Mr. Ronayne or by his informant to prove or substantiate in any way the charges which were made in the famous memorandum. On the contrary, Mr. Ronayne has now practically unreservedly withdrawn those charges, and his informant, whom we have every reason to believe is the Hon. Mr. Jenkinson, has also made no attempt to substantiate or prove anything whatever against the men at Addington. That being so, I say again, my duties have been very light. My duties have been further lightened by the evidence which has been brought forward by Mr. Beattie on behalf of the officers, and my duties have been still further lightened by the keen desire which you, Mr. President, and other members of the Board have exhibited to arrive at the true facts of the case for yourselves.

I do not propose to enter into an exhaustive *résumé* of the evidence, but I merely propose to take the scope of the inquiry clause by clause, and touch upon the different points as I think they affect the men at the works. The first clause, then, is "efficiency of the plant and appliances." I have noticed that you, as members of the Board, have closely questioned the various witnesses that have come before you on this point. You have paid several visits of inspection to the works, and I have no doubt that you will carefully weigh the evidence heard, and, as a result of the observations you have made, you will make recommendations in accordance with the evidence and in accordance with those observations. On that point I do not wish to say anything further.

I now come to the second clause, "the system of work adopted." I do not propose to enter very fully into this subject further than to point out what I consider an injustice which has been done to the men under part of the system. I refer to what is known as the holiday "rushes." At those times, more especially in the fitting department, men are called upon to work overtime. Very often a man is called on to work on throughout the night into the small hours of the morning, but he is only paid at the ordinary rates—more often than not that is the case, owing to the subsequent holidays which are the cause of these rushes. This circumstance has for years caused a great deal of dissatisfaction among the men throughout the Railway service, and we think it is only fair that these men should be paid overtime rates for this work. It is not their fault that they are sent home for these subsequent holidays ; but you, I am sure, will recognise that it is an entirely different thing to call upon a man to work sixteen hours a day at a stretch from working eight hours in an ordinary day. I hope, therefore, that when the Commissioners are considering the system of work they will bear this matter in mind, and make such recommendations to the Minister as will cause an alteration of this system to be made and some greater measure of justice to be given to the workmen.

Now I come to what I think is the main point of the whole inquiry in so far as the men are concerned. I refer to clause 3 of the order of reference, "the discipline maintained." There has been a good deal of evidence on this point. In fact, I think a great part of the evidence has been given in connection with this clause. We have, in the first place, the evidence of the officers. We have the evidence of Mr. Ronayne himself. He is perfectly satisfied now from the reports which he has received, and also as the result of his own observations, that the discipline at Addington is as good as elsewhere. Mr. Jackson, the Locomotive Engineer ; Mr. Richardson, the Workshops Manager ; and all the Workshops foremen have spoken in terms of the highest praise of the discipline maintained. And then we have the evidence of outside officers—the evidence of Mr. McCarthy, of Mr. J. H. Fox, and also that of Mr. Forbes, of the Petone Workshops—all of whom spoke in terms of the highest praise of the workmen at Addington in so far as discipline is concerned. But in case the Commissioners should think that these men are in some way themselves incriminated in the charges which have been made, and that their evidence to that extent is liable to be biassed, I would direct your attention to the evidence of independent outsiders who have come before you. I should specially like to emphasize the evidence of Mr. Robertson. Here you had the evidence of a man who had every facility of seeing the work going on in the Workshops. He was practically on the premises daily for a period of something like two or three years. He had the whole run of the place, as it were. And what do you find him saying ? Mr. Robertson said he had every opportunity of seeing what was going on at the Addington Workshops. He thought the New Zealand workmen, especially those at Addington, compared more than favourably with the men in outside shops—the charge of loafing was, in his opinion, untrue. Then, sir, we had the evidence of Mr. Mauchlin, another outsider. He was at one time, as he stated in his evidence, an

employee in the Workshops, and he should know of what he is speaking. He now holds a responsible position with an outside private firm. Mr. Mauchlin said he did not think any more idling took place at Addington than in any other shops: if anything, the discipline was more severe than in outside shops. Then, again, there was the outside evidence of Mr. George Scott, who said that the men at Addington were at present doing all they possibly could under existing conditions. Then we had the evidence of Mr. James Hislop, who is now an entirely disinterested person—a retired Railway servant. He seems to have had a good deal of experience in private employment. Mr. Hislop said he worked as hard at Addington as he did in any other place, including the shop of Messrs. Price Bros. Then, again, if you want further outside evidence, I would quote our friend the Hon. Mr. Jenkinson. Mr. Jenkinson said he was in the habit of visiting the Addington Workshops twice yearly. He did not notice any loafing on the part of the men when he visited Addington. Regarding the riveting, he did not complain of the work of the men. That evidence is all in favour of the men. On the other hand, as against the men, we have but little evidence—practically none. The only evidence we have which could be taken as against the men is that of Mr. Jenkinson, where he said he had heard that men were in the habit of speaking to their foremen in insulting language. I do not think you could possibly accept hearsay evidence of that sort. Mr. Jenkinson had no practical knowledge of anything of that kind happening, and the various officers who have been before you giving evidence have all stated that they know nothing of such language having been used. I think, then, sir, that you will find on this point the character of the men has been completely vindicated. I hope you will make this clear and emphatic. I notice that some of the newspaper Press—the country Press especially—are making statements to the effect that Mr. Ronayne has withdrawn his charges under political compulsion, and have practically said that there is no doubt that the charges were perfectly true. I hope you will make your finding on this point so plain and so emphatic as to disabuse the minds of those gentlemen for all time as to the state of discipline in Addington Workshops.

I will now pass on to the cost of production at Addington as compared with the cost in other shops, whether Government or private. A very large amount of evidence has been put before you on this point by Mr. Beattie. I have no doubt that you will carefully examine the tabulated statements and the returns put in, and if you do this I have every confidence that your finding on this point will be favourable to the Addington Workshops.

Passing on from that I come to clause 5—the output: whether it is reasonable in quantity and quality having regard to all the circumstances. Now, I should just like to refer to some of these circumstances which you as Commissioners will have to take into consideration in dealing with this clause. I would first bring under your notice what has been brought out in evidence—the mixture of the work: that is, the repair-work and new work being all done in one shop, and the taking-away of men from the new work for repair-work. That is a disadvantage. I think it should be taken into consideration. There is also another fact which should be taken into consideration in considering this point, and that is that it is only possible to complete one locomotive at one time. That, I think, is also a disadvantage. I would direct you, sirs, to a further disadvantage under which we at Addington labour—that is, the preference which seems to be given to the firm of Messrs. Price Bros. in getting out work. It has been shown in evidence that gear has been actually taken from an Addington engine to be sent away to the firm of Price Bros. That means that Addington men have to do their work twice over as against once to the employees of Price Bros. The evidence further showed that Price Bros.' work had a priority of claim on the machines, and Addington work has been pushed on one side whilst Price Bros.' work has been pushed ahead. That is another circumstance which I think might well be taken into consideration. Then, of course, I would ask you to consider the quality of the work. Evidence has been given showing that the quality of the work at Addington is unsurpassed. Mr. Ronayne himself has never had any fault to find with the work at Addington. He declared that, so far as the quality was concerned, the Addington shops could hold their own with any shop in the world. He made that statement having but recently made a tour of Canada, America, and England. I would therefore ask you to take that fact into consideration in considering your finding on that clause.

And now, sir, I come to the last but to my mind by no means the least important clause of the whole scope of the inquiry. That is the clause which demands that the Commission shall inquire into any matter calling for alteration or improvement in the interests of efficiency or discipline. I will divide this into two parts—efficiency and discipline. I will take first the interests of efficiency, and under this heading I would ask you to consider the necessity of making some recommendation by which men may be encouraged to work out new devices and new inventions. I am asking this quite apart from the merits or demerits of any inventions or devices which have been brought before you in evidence. I think that the men at Addington generally think that something more should be done in this connection than is done under the present state of affairs. The process which Mr. Ronayne outlined yesterday appears to us to be a very slow process indeed. Mr. Ronayne informed us that when a new invention was devised the man devising the same could report it to his foreman. His foreman would report it to the Workshops Manager, and the Manager in his turn would pass it on to the Locomotive Engineer, who in his turn would pass it on to the Mechanical Engineer, who in his turn would pass it on to the General Manager. Now, I think that this is a fairly slow process. I have here a copy of a letter which an employee sent in to the Head Office asking for recognition for various devices which he had brought about. He waited for nine months before he got a reply from the Head Office, and then it was practically simply to say that his devices and inventions were under consideration. When I saw that employee last those devices and inventions were still under consideration. How long they are likely to be I do not know. But, apart from the slow process, I think the system can hardly be said to be a satisfactory one. I think it hardly reasonable that, if a man has a device which he considers to be of any value, he should be asked to run off and give his idea away to five or six practical expert men. Before that is done I think the man should be allowed, in order to protect himself, to

take out a provisional patent. Of course, he will have to pay the fee himself, and if he has confidence in his own idea, and is willing to pay his fee, then I think he should be allowed that privilege. I would ask you, then, to carefully consider this matter. It is a matter in which the men are deeply interested, and I would ask you to make such recommendations as would bring about greater improvements in this respect.

There is just one other suggestion which has been made to me by some of the men. They have said that in factories or workshops in America there are suggestion-boxes placed round the works, and employees are invited to place suggestions in those boxes, and if they prove on investigation to be of any merit they are granted some bonus for the suggested improvements.

Under the heading of efficiency, and also of lack of discipline, I would draw your attention to the necessity which seems to exist, according to the evidence, for the appointment of a leading hand in the blacksmiths' shop. According to the evidence, Mr. Cole, the blacksmith foreman, has ninety-one men under him at present, and he has three hours' office-work a day to attend to. Mr. Richardson, the Workshops Manager, in the course of the cross-examination by myself, admitted the necessity for such an appointment. He saw the necessity now for the appointment of a leading hand in the blacksmiths' shop. I would ask you, then, to make such recommendation. Whilst I am on the question of leading hands, I would also like to refer to the case of Gasfitter Turner. Here we have a man who, according to his evidence, has charge of the fitting-up of the American and other cars with the water-service and Westinghouse brake. He did not do all this himself. Mr. Turner has had under him at one time as many as eleven men, and invariably has as many as two or three men under him—more often than not that is the case. Yet this man is only in receipt of the ordinary rate of pay. Why the Department has not previously recognised this man's services is a mystery to me and to many others.

Now I come to another question which has been touched upon a good deal during the evidence—the question of the engaging and discharging of the staff. As regards the engaging of the staff I am not concerned. There seems to be a difference of opinion on that question amongst the officers, and I am prepared to leave it to them to fight it out. But I am concerned with regard to any recommendation you may see your way to make regarding the discharging of men. Mr. Jenkinson and Mr. Scott both seemed to think that the officers should have some power as regards discharging the men. Now, sir, does there really exist any necessity for a change from the present system? I think, if we look through the evidence carefully and examine it, we shall find that there has not been shown any necessity for a change. Mr. Jackson stated, in the course of cross-examination by myself, that he had full powers, and that the Workshops Manager had power to suspend a man in the event of insubordination. Mr. Jackson further stated, in reply to a question by myself, that in the event of his reporting a man to Wellington for insubordination he would have no difficulty in ridding himself of him. Mr. Fox also stated that he found no difficulty whatever in enforcing discipline in the various shops which came under his control from time to time. As regards discipline, it is perfectly clear that there at the present time exists no necessity for a change. The Manager, as I have already said, has power to suspend a man for insubordination. During the time of suspension the man suffers complete loss of pay, and therefore he (the Manager) appears to possess full powers to enforce discipline. But, as regards the point of view of efficiency, it might be ruled that a change is necessary. I would, however, direct your attention to Mr. Beattie's evidence as given yesterday. Mr. Beattie did not remember experiencing any difficulty in the discharging of men during his time as Locomotive Engineer at Addington. Now, it is only fair to assume from that evidence that had Mr. Beattie laboured under any disadvantage in that respect he would not readily have forgotten it. Then, as against any change, I would further point out that Government men differ from men in private employment, and have a good deal more at stake. They have more to lose in the event of dismissal than a man in private employment. It is all very well for Mr. George Scott to say that the Manager should have more power, but I contend that a man in Addington is on a different footing altogether from a man in Mr. George Scott's employ. If a man is dismissed from Mr. Scott's employ he can go to some other employer and secure a situation, and that is the end of it; but a dismissal from the Government employ involves more than that. So far as I know, there is no private employer in the Dominion who makes any provision for the old age of his employees. That is a matter that is done privately by the employees themselves, and is unaffected by any dismissal from one employer. I would, however, point out with regard to the men at Addington that with their employment is bound up their provision for old age, and if they are dismissed that has a detrimental effect. I contend on that ground that the men should only be dismissed after very close investigation, and it should not be made possible for one individual to hastily dismiss any man, and perhaps unduly affect the provision which he is making for his old age.

Now, sir, it may be and possibly will be argued that there is no intention to in any way interfere with the permanent staff, and that it is only they who benefit under the provisions of the Superannuation Act. But I would point out that this is not so. There are casual men in the service who have hopes, and who indeed have already been promised by the Department, that they will be made permanent men, and who are looking forward to participate in the benefits of the Superannuation Act. Some of these men, to my own knowledge, have as much as eleven years' casual service. In the event of their being placed on the permanent staff the whole of that continuous eleven years will count for superannuation purposes when they have reached the age of sixty years. If one of these casual men with eleven years' service was hastily and unduly dismissed by his superior officer, it means a loss to that man—say he was in receipt of 10s. a day—at the age of sixty of 11s. per week. That being the case, I consider that casual men should only be dismissed after the position has been carefully reviewed and reconsidered. I would point out further that a casual man has no right of appeal. He would have no way of showing that an injustice had been done him. But it may be said that there is no likelihood of such an injustice being done. As against that I would direct you to Mr. Ronayne's evidence. Mr. Ronayne stated this in evidence yesterday, and I would particularly ask any officers present to

notice that these words are not mine but Mr. Ronayne's. In speaking of this system which was in vogue some years ago of allowing the local officers full control of men, Mr. Ronayne said, "Some officers inflicted severe penalties, out of all proportion to the offence." Those are the words of a man experienced in railway-work. If it were possible years ago for officers to act in this way I suppose officers would still do so. I would also request you, then, to carefully weigh the evidence on this point before you make a recommendation which would bring about some alteration in the present system. I would also ask you to carefully consider the evidence of Mr. Beattie yesterday. Mr. Beattie pointed out very clearly that whilst work might be scarce in one shop it might be plentiful in another. It might be possible for him to transfer orders from one shop to another. If you give the Workshops Manager the power to dispense with men, he might dispense with men because there was no work in hand. If he has, as is now the case, to report to Wellington, it might be possible for Mr. Beattie to send work from another part of the Dominion, and thus keep these men employed and keep their service from being broken. I ask you, therefore, to consider all these various points, and not to recommend any departure from the present system, at any rate inasmuch as it affects the discharge of the men.

And now, sir, to conclude: I may add that I think it is in the best interests of the Department, and the men, and the people of this country that any future statements of a like character to those which have been the cause of this inquiry being held should be accepted with some degree of caution, and full investigation made before they are given broadcast to the Press and the public to talk about. If this course had been followed in the present case I feel sure that this inquiry would not have been held.

I must thank the Board for the courtesy, and consideration, and latitude which it has extended to me whilst acting as the men's representative. If I have transgressed in any way I can assure you it has not been done intentionally, but from a want of knowledge and experience on my part, and I trust you will accept this as my explanation for so doing. I wish also to thank Mr. Thomson, the Secretary of the Board, for the courtesy and consideration he has extended to me. I am sure that some of us at times have rather taxed his patience, but I trust he will accept our apologies for so doing. I would also like to thank the representatives of the Press for their very fair reports which have appeared from time to time.

And now, Mr. President and gentlemen, so far as I am concerned the whole matter is in your hands. I believe you will carefully weigh the various points which you have been asked to give a decision upon, and I believe that the decisions which you will give will result in the complete vindication of the character of the men. I believe also that improved facilities will be given to the men at Addington, and that they will be enabled thereby to make Addington Workshops what they all desire it to be—the leading Workshops in the Dominion.

Mr. A. L. Beattie, Chief Mechanical Engineer, Representative of the Officers of the Railway Workshops.

With your permission, sirs, I propose summarising in the order of reference certain remarks on the evidence already before you.

With regard to the efficiency of the plant and appliances at Addington, I might state that since I became Chief Mechanical Engineer, in 1900, additional plant and machinery for Addington Workshops has been supplied to the value of £30,761, and building additions to the value of over £10,000, making a total of nearly £41,000 in nine years.

It has been fully recognised, however, that the Addington plant and accommodation was insufficient for the rapidly growing work, and various proposals and schemes were from time to time put before the General Manager and discussed with him. The funds available and allotted each year for additional machinery were, under the General Manager's approval, expended to the best advantage of all the Railway Workshops in the Dominion—for it should be remembered that additional plant was needed in other Workshops besides Addington.

It has been under consideration for a number of years past to rearrange certain machinery at Addington, more especially that in the machine-shop, and also to increase the accommodation. In connection with this the question of electrification generally of the motive power has been repeatedly discussed and considered, but the large outlay involved has so far precluded its adoption.

A scheme for the electrification of the Addington overhead cranes only, apart from the general machinery, was considered in 1904, but the estimated cost of that reduced installation was £5,000, which outlay had to be postponed, funds not being allotted for this work.

For the overhead gantry above the new or larger hydraulic riveter at Addington a 20,000 lb. pneumatic portable hoist is in order. This pneumatic hoist will answer all present purposes at the large riveter, and, in the event of general electrification at Addington, would come in usefully for a smaller Workshop.

Approval was obtained from the General Manager to have the necessary alterations made to Addington iron-foundry building to admit of a suitable pneumatic hoist being used for all heavy lifts, and this work is about to be carried out.

In view of the contemplated schemes, both electrical and producer-gas, for improving the motive and lifting power at Addington, probably necessitating a central power station, steam requirements have meanwhile been met by using spare locomotive-boilers as auxiliaries to the original fixed boilers.

The Hon. Mr. Jenkinson, in his evidence, stated that less than a hundred rivets per day were got out of the new hydraulic riveter, and that he was not overstating the case in saying that each rivet took over five minutes. As a matter of fact this machine puts in, in some parts of a boiler, over one rivet per minute, but in the more awkward parts the rate is necessarily much slower. Taking the riveting of the whole of an X class boiler, including placing in position, raising, lowering, &c., with the present hand-gear, the average per day is 200 rivets. With the pneumatic hoisting-gear on order

this rate of riveting will be very materially increased. It must be remembered that, in riveting up 1⅛ in. rivets in a locomotive-boiler to carry a working-pressure of 250 lb. per square inch, the greatest care is essential to insure sound work.

The plate-bending rolls at Addington meet all ordinary requirements, and as only eight Class X boilers had to be made it was not considered necessary to import a specially heavy set of rolls for curving the eight seven-eighths cone-plates, it being known that the bending could be done in a private foundry.

Mr. Jenkinson's evidence as to machinery generally at Addington Workshops would appear to have been based on insufficient information. Although some of the machinery is old, and not up to date, it is still serviceable and doing useful work. With a view to increasing the daily output of work from the older machines which were built to use the old-fashioned carbon tool-steel, the strengthening and adaptation of such machines as are suitable has been commenced in order to enable modern high-speed tool-steel to be used. In Addington Workshops there are also a large number of modern and thoroughly efficient machines.

Although desirable to replace old machinery with the most modern tools, the cost of doing so would be very considerable and, in some instances, hardly warranted. It has been recognised that additional steam-hammers and other tools would be beneficial in the blacksmith and boiler shops, and as funds are allocated these will be provided.

A hydraulic flanging plant is not an essential at present: the maximum number of new boilers made each year for the whole of the railways does not exceed about twenty. Twenty locomotive-boilers would involve the flanging of 100 plates, which would only occupy such a costly plant a very small proportion indeed of the year.

Desiring in 1906 to ascertain particulars of improved methods and machinery in use in the principal Australian Railway Workshops and private foundries, our Workshops Managers from Addington and Petone were sent across to Australia to take detailed notes as to how the work there was arranged and executed, to note also special plant, machine tools, appliances, processes, and methods, or anything else likely to be of interest in New Zealand Railway Workshops, either for new or repair work. On the return of these officers they recommended that certain machines should be procured for Addington, and these machines were duly obtained, with the exception of two, one being a hydraulic flanging-press, and the other a mangle for straightening frame-plates for new locomotives. These two machines together were estimated to cost, put to work, nearly £5,000. As I have already pointed out, there is now, at present, not nearly enough flanging work for a big press. As to the mangle, which is a special machine for straightening new frame-plates for locomotives, our present output of new locomotives averages about ten a year, the frame-plates needed for which the mangle could handle in less than a week. The expenditure on such a special appliance was considered to be unwarranted in the meantime.

The question of improved overhead lifting-gear was also reported on, and my remarks on the subject have been already put before you.

In Hillside Railway Workshops a number of self-propelling travelling steam jib cranes have been built. These cranes have a lifting-capacity of 7 tons. The jibs can be raised or lowered under load, and cranes can be used either inside or outside the Workshops buildings. The Railway Workshops at Addington, Hillside, Petone, and Newmarket each have one of these cranes in regular use.

Regarding Mr. Jenkinson's statement that there were no pneumatic hoists at Addington Workshops, I would point out that these works are provided with a large air-compressor, air being led to the various shops. Practically all the machines doing heavy work are equipped with pneumatic hoists, some imported, and others made at Addington. Many of these pneumatic hoists are carried on travellers, so that they may be moved, with their load, about the shop.

All shops are provided with pneumatic drills, chipping-chisels, &c., and these are being added to each year.

Regarding the system of work adopted, the Workshops Manager issues orders for work to the different foremen concerned, who in turn arrange with their leading hands its distribution amongst the respective workmen. Charges for labour and material are dealt with on the various Workshop accounting forms, specimens of which forms have already been furnished for the information of the Commissioners. On completion of the work the Manager is advised by foremen on forms prescribed for that purpose.

Re the discipline maintained: The evidence already before the Commissioners is, I submit, conclusive on this point. The informant's allegations made to Mr. Ronayne, and embodied in the letter which Mr. Ronayne directed should be sent on to Addington for searching investigation, were, I submit, unwarranted, and have not been substantiated. From my own personal knowledge and observation I am satisfied that the officers do maintain efficient discipline.

Re the cost of production at Addington as compared with the cost in other Railway Workshops or private establishments, I submit that the cost of work executed at Addington compares favourably with that of any other Railway Workshops in the Dominion. The cost of doing similar work in the different Railway Workshops is liable to vary somewhat, and a comparison is the more difficult from the fact that Addington manufactures a proportion of the new work for the other Workshops. Then there is a variation in the local rates for material, each centre having a local contract for the supply of material. When a marked variation occurs in the cost of similar work done in any Railway Workshop the cause of the difference is closely investigated. I have put in, for the information of the Commissioners, a return showing the cost of manufacturing various classes of rolling-stock in different Workshops.

A new design of double-ended suburban tank engine, Class WF, was put in hand at Addington in 1903. A complete set of new patterns was made and charged against the order for building these engines. Then, in consequence of inadequate accommodation and pressure of ordinary repair-work, the engines had

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.

A study of the returns already furnished for the information of the Commissioners will show that the cost of manufacturing is being gradually reduced on each successive order for new engines of similar types.

Mr. Beattie put in returns dealing with the commission charges in the various Railway Workshops.

The Chairman: Can you give us the references from which this data is extracted?

Witness: It is partly from correspondence with Chief Mechanical Engineers in other places. In some cases they are from published data.

The Chairman: You will give us the references?

Witness: I will if I can. I have not them with me.

[Comparison of costs of A locomotives put in; also statement showing charges made in New Zealand Government Railway Workshops as compared with charges made in other Government Railway Workshops.]

Continuing, *Mr. Beattie* said, in the Newport Railway Workshops, Victoria, they consider that if they can lay down ten locomotives at a time they save 25 per cent. in the cost of labour. Whether that 25 per cent. is an exact figure or not, it will be obvious, I think, to the Commissioners as practical men that the more locomotives which can be carried out at one time the cheaper many of the charges will come.

I do not think there is anything else that I can say, except that I should like to express, on behalf of myself and the officers I represent, appreciation of the very courteous and thorough manner in which you have conducted the inquiry, and our entire confidence in the fair-minded manner in which you have approached it. We in our turn have endeavoured to do our best to supply you with all the information which you desire, or which we thought would be of interest to you.

RETURNS.

RETURN I.

[All particulars furnished by Railway Department.]

SALARIES OF OFFICERS IN WORKSHOPS.

Name.	Grade.	Salary per Annum.
	Addington.	£
G. E. Richardson	Workshop Manager	400
J. T. Henderson	Foreman	300
D. Handisides	Foreman	255
G. V. D. Butts	Foreman	255
W. H. Cole	Foreman	220
J. S. Clarke	Foreman	220
J. Barbour	Foreman	220
D. J. Round	Foreman	210
J. W. Lowry	Clerk	180
S. T. Callaway	Clerk	190
C. W. Johnston	Clerk	180
A. F. Fitzpatrick	Clerk	135
H. A. Trewern	Cadet	50
	Hillside.	
S. P. Evans	Workshop Manager	370
J. Carson	Foreman	290
R. Johnson	Foreman	260
S. Nicholson	Foreman	255
H. F. Holder	Foreman	210
C. H. Virtue	Clerk	180
J. M. White	Clerk	120
F. E. Bowen	Clerk	120
L. A. J. Emery	Cadet	80
D. H. Hastings	Casual Clerk	10s. per day.

STAFF, ADDINGTON.

Foreman.	November 7, 1908.			December 5, 1908.			January 30, 1909.			March 12, 1909.		
	Men.	Boys.	Total.	Men.	Boys.	Total.	Men.	Boys.	Total.	Men.	Boys.	Total.
Henderson ..	94	29	123	93	33	126	82	32	114	82	32	114
Butts ..	188	42	230	180	41	221	160	39	199	124	36	160
Clarke ..	42	8	50	51	9	60	47	9	56	45	8	53
Cole ..	90	11	101	95	11	106	80	11	91	80	11	91
Barbour ..	44	6	50	44	5	49	36	5	41	36	4	40
Handisides ..	56	10	66	54	10	64	56	9	65	54	8	62
Round ..	55	10	65	54	11	65	53	11	64	52	10	62
Total ..	..	..	685	..	..	691	..	..	630	..	..	582

STATEMENT SHOWING THE NUMBER OF TRADESMEN ON THE PERMANENT STAFF AT ADDINGTON, 1ST APRIL, 1909.

Designation.	Leading Hands.			Tradesmen.		Juniors.	Apprentices.
	Grade 1.	Grade 2.	No Grade.	Grade 1.	Grade 2.		
Fitters	4	2	..	20	17	1	26
Turners	..	1	..	14	4	..	5
Boilermakers	1	..	..	11	7	..	7
Blacksmiths and springmakers ..	..	..	..	18	2	..	7
Carpenters	1	1	..	14	6	..	3
Patternmakers	..	1	..	..	2	..	..
Painters	..	..	..	13	5	..	5
Iron-moulders	..	1	..	8	2	..	1
Brass-moulders	..	..	..	3	1	..	2
Coppersmiths	1	..	..	1	2	..	..
Tinsmiths	..	..	..	1	1	..	1
Trimmers	..	..	1	1	1	..	1
Sailmakers	..	..	1	1	..	..	1

STATEMENT SHOWING THE NUMBER OF REGULAR CASUAL TRADESMEN AT ADDINGTON, 1ST APRIL, 1909.

Designation.	Tradesmen.		Designation.	Tradesmen.	
	Grade 1.	Grade 2.		Grade 1.	Grade 2.
Fitters	32	2	Iron-moulders	6	..
Turners	11	..	Brass-moulders	..	..
Boilermakers	7	..	Coppersmiths	1	..
Blacksmiths and springmakers	7	..	Tinsmiths	..	1
			Trimmers	..	..
Carpenters	4	1	Sailmakers	..	7
Patternmakers	..	..	Bricklayers	..	1
Painters	2	..			

STATEMENT SHOWING THE NUMBER OF TERM CASUAL TRADESMEN AT ADDINGTON, 1ST APRIL, 1909.

Designation.	Tradesmen.	
	Grade 1.	Grade 2.
Fitters	1	1
Turners	10	..
Blacksmiths	3	..
Boilermakers	8	1
Tinsmiths	..	1
Iron-moulders	5	..
Patternmakers	1	..

STATEMENT SHOWING THE NUMBER OF HANDS OTHER THAN TRADESMEN ON THE PERMANENT STAFF AT ADDINGTON, 1ST APRIL, 1909.

Designation.	Leading.	Grade 1.	Grade 2.	No Grade.
Woodworking machinists	1	1	3	..
Furnacemen	..	3	..	..
Helpers	..	2	..	..
Ironworking machinists	1	23	12	..
Sewing machinists	..	3	..	..
Strikers	..	35	2	..
Holders-up	..	7	2	..
Fettlers	..	1	..	..
Labourers	2	..	..	12
Skilled labourers	..	..	..	14
Lifters	..	1	4	..
Shop enginemen	..	4	1	..
Crane-drivers	..	1	..	..

STATEMENT SHOWING THE NUMBER OF HANDS OTHER THAN TRADESMEN EMPLOYED AS REGULAR CASUALS AT ADDINGTON, 1ST APRIL, 1909.

Description.	Grade 1.	Grade 2.	No Grade.
Woodworking machinists	..	..	..
Ironworking machinists	2	2	..
Junior machinists (iron)	..	..	11
Junior sewing machinists	..	..	3
Strikers	5	7	..
Junior strikers	..	..	2
Holders-up	2	4	..
Fettlers	1	1	..
Labourers	..	..	11
Skilled labourers	..	..	3
Junior labourers	..	..	22
Lifters	..	5	..
Junior lifters	..	..	2
Shop enginemen	1	..	..

STATEMENT SHOWING THE NUMBER OF HANDS OTHER THAN TRADESMEN EMPLOYED AS TERM CASUALS AT ADDINGTON, 1ST APRIL, 1909.

Designation.	Grade 1.	Grade 2.	No Grade.	Juniors.
Ironworking machinists	..	1	..	..
Holders-up	..	8	..	..
Strikers	1	..	..	..
Labourers	..	..	20	..
Casual junior labourers	..	..	8	..

STATEMENT SHOWING THE NUMBER OF HANDS EMPLOYED AS EMERGENCY CASUALS AT ADDINGTON, 1ST APRIL, 1909.

Twenty-six labourers.

PARTICULARS OF HANDS EMPLOYED IN FITTING, CAR, SMITH, AND BOILER SHOPS AT ADDINGTON AND HILLSIDE WORKSHOPS; TOGETHER WITH STATEMENT OF NEW WORK AND REPAIRS EXECUTED FOR YEARS 1906 TO 1909.

Years.	Average Number of Hands employed.					Locomotives.				Boilers.				Stationary Engines, Cranes, &c.				Cars.				Vans and Wagons.			
	Fitting-shop.	Car-shop.	Smiths' shop.	Boiler-shop.	Total.	New.	Heavy Repairs.	Light Repairs.	Total.	New.	Heavy Repairs.	Light Repairs.	Total.	New.	Heavy Repairs.	Light Repairs.	Total.	New.	Heavy Repairs.	Light Repairs.	Total.	New.	Heavy Repairs.	Light Repairs.	Total.
Addington—																									
1905–6	145	74	79	68	366	4	37	25	66	15	15	29	59	..	5	21	26	13	8	207	228	..	367	2,721	3,088
1906–7	173	70	79	70	392	3	41	34	78	10	16	30	56	..	5	12	17	13	22	187	222	78	602	711	1,391
1907–8	168	65	95	81	409	4	36	33	73	23	15	25	63	..	..	40	40	10	15	159	184	9	263	794	1,066
1908–9	207	67	105	116	495	3	51	25	79	19	22	35	76	..	1	11	12	3	12	150	165	40	215	1,269	1,524
Hillside—																									
1905–6	139	85	46	32	302	..	64	35	99	..	21	28	49	..	2	9	11	17	61	251	329	162	293	1,127	1,582
1906–7	144	86	68	48	346	..	64	38	102	..	18	29	47	2	1	5	8	19	70	216	305	158	231	1,939	2,328
1907–8	160	77	92	79	408	6	49	32	87	..	22	28	50	..	6	6	12	1	67	172	240	354	379	1,667	2,400
1908–9	166	75	83	62	386	8	52	34	94	2	15	50	67	2	7	3	12	..	58	244	302	283	464	1,673	2,420

TOTAL WAGES PAID AT ADDINGTON EACH YEAR SINCE THE 1ST APRIL, 1900, AND NUMBER OF MEN EMPLOYED.

Year.	Total Wages per Year.	Number of Men in January of each Year.	Average Monthly Wages per Man in January of each Year.
	£ s. d.		£ s. d.
April 1, 1900, to March 31, 1901 ..	51,630 1 0	458	9 6 0
,, 1901, ,, 1902 ..	65,282 8 7	557	9 2 11
,, 1902, ,, 1903 ..	63,759 8 2	534	9 7 6
,, 1903, ,, 1904 ..	60,512 15 7	477	9 6 7
,, 1904, ,, 1905 ..	57,687 4 6	465	9 14 4
,, 1905, ,, 1906 ..	59,352 15 1	473	9 10 6
,, 1906, ,, 1907 ..	66,960 12 5	518	9 19 10
,, 1907, ,, 1908 ..	73,899 11 11	586	9 14 5
,, 1908, to February 27, 1909..	80,872 5 5	696	10 1 1

TOTAL VALUE OF WORK, ADDINGTON.

Year.	Wages.	Material.	Commission.	Total.
	£	£	£	£
March 31, 1905	58,133	38,445	11,960	108,538
,, 1906	59,714	46,957	12,777	119,448
,, 1907	67,876	57,144	15,655	140,675
,, 1908	74,647	61,686	16,114	152,447
January 30, 1909 (11 periods)	75,222	75,475	17,595	168,292

Annual Consumption of Fuel and Oil and Waste used for Shop Purposes.

Shop.	Coal.				Coke.		Oils.											Remarks.
	Kaitangata Lump.	Seddonville.	Kaitangata Peas.	Kaitangata Nuts.	Hard.	Gas.	Valve.	Kerosene.	Machine.	Engine.	Light.	Colza.	Linseed.	Dark.	Pale.	Castor.	Waste.	
Hillside.																		
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	lb.	
Fitting and machine shop—																		
1 Porter-Allen engine, 75 i.h.p.	..	..	..	..	..	..	5	34	105	78	..	..	..	..	..	..	125	To October, 1908; machinery working 96 hours per week.
2 Babcock and Wilcox boilers	620	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Smith and boiler shop—																		
1 Porter-Allen engine, 50 i.h.p.	..	..	..	..	..	..	10	12½	100	135	..	..	..	..	..	..	163	Provides steam for shop-engine, blowing-engine, air-compressor, steam-pump for hydraulic plant, 3 steam-hammers, &c.
2 Babcock and Wilcox boilers, 1 locomotive-boiler	..	1,500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Smith's fires	..	500	..	..	117	70	..	..	..	..	..	..	..	..	..	..	..	
Wheel-bossing fires ..	..	..	..	..	80	..	..	..	..	..	..	..	..	..	..	..	..	
Wheel-furnace	..	323	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Hydraulic-press furnace ..	..	500	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Spring-furnace	..	60	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Plate-furnace	..	75	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Car-shop—																		
1 Porter-Allen engine, 75 i.h.p.	..	..	..	..	..	..	..	2	5	45	5	..	..	..	..	..	32	
1 Babcock and Wilcox boiler	..	..	150	230	..	..	..	..	..	..	..	..	..	..	..	..	..	Tailings, sawdust, &c., from mill burned in this boiler.
Iron-foundry	..	..	..	..	48	42	..	..	..	..	..	..	..	..	..	..	..	
Brass-foundry	..	..	..	..	..	13	..	..	..	..	..	..	..	..	..	..	..	Very seldom used.
Oil and Waste used in Shops.																		
Fitting and machine shop ..	..	..	..	..	..	..	..	17	9	3	..	5	5	..	..	..	145	
Smith and boiler shop ..	..	..	..	..	..	..	..	25	2	..	..	..	..	30	8	..	48	
Car-shop	..	..	..	..	..	..	..	12	..	..	..	..	..	..	20	10	60	
Iron-foundry	..	..	..	..	..	..	..	38	..	..	..	..	5	..	5	..	50	

ANNUAL CONSUMPTION OF FUEL AND OIL AND WASTE USED FOR SHOP PURPOSES—*continued.*

Shop.	Coal.						Coke.		Oils.									Remarks.
	Point Elizabeth.	Seddonville.	Abermain.	Pelawmain.	Hetton.	Newcastle.	Hard.	Gas.	Kerosene.	Machine.	Colza.	Linseed.	Dark.	Pale.	Castor.	Cylinder.	Waste.	
								Addington.										
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	Gal.	lb.	
Fitting and machine shop—																		
1 Porter-Allen engine, 75 i.h.p.	..	..	..	..	..	..	..	..	83	..	..	..	120	28	46	40	184	Machinery working from June, 1908, to date, 96 hours per week.
1 Babcock and Wilcox boiler, 1 locomotive-boiler	1,108	150	42	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
1 Pollock-White gas-engine, 40 b.h.p.	..	..	..	..	..	..	..	53	..	..	..	..	..	38	..	51	42	
Boiler-shop—																		
1 engine, Scott Bros., 75 i.h.p.	..	..	..	..	..	..	..	..	9	..	10	..	359	..	38	77	264	Provides steam for shop-engine, dynamo, blowing-engine, and air-compressor, 5 steam-hammers, steam-shears, &c.; machinery working from June, 1908, to date, 96 hours per week.
2 Cornish boilers, 3 locomotive-boilers, fires	1,605	..	..	325	..	..	..	93	..	..	..	..	..	..	..	..	..	1 Cornish boiler fired from scrap-furnace. Scrap-furnace working 124 hours per week to December 23, and 96 hours from December 23 to date.
Smith-shop—																		
Smith's fires	172	816	..	..	..	..	..	122	..	..	..	..	..	..	..	..	..	
Spring-furnace	95	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Annealing-furnace	92	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Plate-furnace	365	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Forge-furnace	..	450	..	..	650	..	..	..	210½	..	..	..	59	..	..	..	36	
Car-shop—																		
1 Porter-Allen engine, 75 i.h.p.	..	..	..	..	..	..	..	..	17	..	..	..	70	..	..	30	45	
1 Babcock and Wilcox boiler	166	25	..	..	..	106	..	..	..	..	..	..	..	..	..	..	..	Tailings, sawdust, &c., burned in this boiler.

Points and crossings shop—																			
1 Davey-Paxman gas-engine, 50 b.h.p.	..	..	..	..	..	..	..	123	..	..	..	..	..	40	..	59	150	Machinery working 118½ hours per week from February, 1908, to November 7, and 96 hours from November 9 to December 23.	
Tarpaulin-shop—																			
1 Priestman oil-engine, 1½ h.p.	..	..	..	..	..	..	..	..	1,041	..	..	..	..	5	..	..	100		
Foundries—																			
Brass	..	..	..	..	..	..	..	28	..	..	..	..	..	..	..	..	..		
Iron	..	..	..	..	..	..	..	56	..	..	..	..	..	..	..	..	..		
Steel	33	..	..	8	..	48	163	..	..	..	..	..	..	..	..	..	..		
Oil and Waste used in Shops.																			
Fitting and machine shop ..	..	..	..	..	..	..	..	..	62	..	20	..	..	..	..	..	305		
Boiler-shop	..	..	..	..	..	..	..	..	121	..	..	..	..	90	..	..	154		
Smith-shop	..	..	..	..	..	..	..	..	7½	..	..	55½	..	5	..	..	124		
Car-shop	..	..	..	..	..	..	..	..	12	..	..	..	..	125	10	..	55		

ADDITIONS, ETC., ADDINGTON WORKSHOPS.

Year.	Amount. £
1900–1	636
1901–2	1,584
1902–3	Nil
1903–4	4,982
1904–5	Nil
1905–6	Nil
1906–7	238
1907–8	578
1908–9	2,010
Total	£10,028

REPAIRS AND MAINTENANCE, ADDINGTON WORKSHOPS.

Year.	Amount. £
1900–1	133
1901–2	312
1902–3	236
1903–4	165
1904–5	412
1905–6	216
1906–7	528
1907–8	520
1908–9	307
Total	£2,829

STATEMENT SHOWING AMOUNT ADDED TO COVER SHOP CHARGES IN NEW ZEALAND GOVERNMENT RAILWAY WORKSHOPS AS COMPARED WITH SIMILAR CHARGES IN GOVERNMENT RAILWAY WORKSHOPS IN VICTORIA AND NEW SOUTH WALES.

(Cost of Class A compound locomotive taken as a basis: Labour, £2,531 4s. 4d.; material, £1,779 0s. 2d.: total, £4,310 4s. 6d.)

	£	s.	d.
New Zealand—			
Shop charges: 15 per cent. in total wages and material = 15 per cent. on £4,310 4s. 6d.	646	10	8
Victoria—			
Shop charges: 20 per cent. on direct charges for labour = 20 per cent. on £2,531 4s. 4d.	506	4	11
New South Wales—			
Shop charges: 32½ per cent. on direct charges for labour (30 per cent. for shop charges and 2½ per cent. for supervision) = 32½ per cent. on £2,531 4s. 4d.	822	12	10

SUMMARY OF SHOP CHARGES MADE IN RAILWAY WORKSHOPS.

Railway.	Percentage added for Shop and Indirect Charges.	
	To Direct Labour.	To Direct Material.
	Per Cent.	Per Cent.
Midland Railway Company, England	10	Nil.
Great Northern Railway Company, England	20	,,
Canadian Pacific Company	10	,,
Grand Trunk Railway system, Canada	Nil	,,
New South Wales Railways	32½	,,
South Australian Railways	30	,,
Queensland Railways	12½ to 17¼	,,
New Zealand Railways*	15	15
Victorian Railways†	20	Nil.

* New Zealand Railways also charge 4d. in the pound as Stores commission for handling material.
† Victorian Railways also charge 1 per cent. for depreciation on material.

RETURN II.

[Supplied by Railway Department.]

PROCEDURE FOR BUILDING ROLLING-STOCK IN GOVERNMENT RAILWAY WORKSHOPS.

Upon approval being received from the General Manager to put new rolling-stock in hand the Chief Mechanical Engineer instructs the Locomotive Engineer in charge of the section to put the work in hand. Take, for example, 100 8-ton wooden high-side wagons, Class L, are approved for South Island main line, the Chief Mechanical Engineer would send a memorandum as per "Pro Forma" attached, marked No. 1. On receipt of this letter by Locomotive Engineer, Addington, he would minute it on to Workshops Manager (see No. 2), or would send him a letter with the same information. The Workshops Manager would then make out orders on Loco/43 forms and send them to the foremen concerned.

The foremen, on receipt of Loco/43 order, would notify their staff, then make out job tickets (Loco/40) for the material they would require for the job. These job tickets are then sent to the Workshops Manager's office, where they are checked, and particulars entered in the Material Ledger, care being taken that nothing was omitted and no more material than required charged against the order. The Loco/40's are then sent to the Railway Storekeeper, who delivers the material ordered, and gets each job ticket initialled as supplied.

At the close of week in which order is received the Workshops Manager sends a list of orders opened and completed, on Loco/44 form, to the Chief Mechanical Engineer's office. Here the order lists are checked and posted into Job Ledgers.

The time of each man working on these orders for 100 wagons is entered daily by him in his Loco/2B time-book. The foreman checks details on each time-sheet, and initials the time each day. Each fortnight the total time shown on each Loco/2B is taken out under the various rates on Loco/2C. At the end of each four-weekly period the time shown on Loco/2B is summarised on Loco/6, and balanced with Loco/2C, totalled, and an average rate per hour arrived at. The number of hours, therefore, charged against the orders for 100 wagons would be worked out and entered on Loco/6 return. This return, when balanced, is sent to the Chief Mechanical Engineer's office, and the amount of wages opposite each order is transcribed into the Job Ledger.

With regard to the material, the Storekeeper enters on S/31 form the material issued as per job tickets, and at end of period he sends the S/31 forms to Workshops Manager's office to be checked and returned. They are then sent by Storekeeper to Stores Manager, who has them priced out, and, with the S/5 summary, transmits them to the Chief Mechanical Engineer's office. Here the details are taken out on Loco/42 form. On this form is also entered from Loco/39 form particulars of any castings made and used on the job, also any forgings. The charges for forgings and castings are compiled by the Workshops Manager on Loco/39 form. This form is sent to Chief Mechanical Engineer's office, and there priced out; the amounts are transcribed on to the Loco/42, opposite the order concerned. The total charges for material on Loco/42 should agree with the total of the S/5 plus the Loco/39. These items are then posted in the Job Ledger, Loco/33, under head of "Material," the wages being taken from the Loco/6. Commission is added and the items totalled, the amount being the debit for the four-weekly period against that order-number.

These details—wages, material, commission, total, total to date—are then transcribed on Loco/35 form, copies of which are sent to each workshop concerned, so that it can be ascertained by Workshops Manager each period how the charges on order stand.

The whole of the Loco/35 returns are summarised and balanced on the Loco/37 form, and sent to Railway Accountant.

Whilst an order is in hand, a report showing position of work, on Loco/95 form, is rendered each period by Workshops Manager to the Locomotive Engineer, who, after signing them, transmits them to the Chief Mechanical Engineer's office.

When an order is completed the foreman signs and forwards to Workshops Manager the triplicate part of Loco/43; the Workshops Manager at close of week renders to the Chief Mechanical Engineer a Loco/44 showing the order completed.

The copies of Loco/35 returns sent to Workshops Manager would show him the total cost of order.

No. 1.

NEW ZEALAND GOVERNMENT RAILWAYS.

No. 178/674. Chief Mechanical Engineer's Office, Wellington, 12th March, 1908.
1908/496.

PRO FORMA.

Loco. Engineer, Railways, Addington.

New Rolling-stock.

PLEASE put in hand at Hillside 100 8-ton wooden high-side wagons, Class L, to Blue-print 4334.

The material for these wagons is in hand at Addington and Hillside Stores.

Open special order-number for this job, debit cost to A.O.L., render usual Loco/95 reports, and show transaction on Loco/65 return.

The numbers for these wagons will be L 9199 to 9298, both inclusive.

(Signed) A. L. BEATTIE,
Chief Mechanical Engineer.

NEW ZEALAND GOVERNMENT RAILWAYS.

No. 178/674. Chief Mechanical Engineer's Office, Wellington, 12th March, 1908.
1908/496.

PRO FORMA.

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The material for these wagons is in hand at Addington and Hillside Stores.

Open special order-number for this job, debit cost to A.O.L., render usual Loco/95 reports, and show transaction on Loco/65 return.

The numbers for these wagons will be L 9199 to 9298, both inclusive.

(Signed) A. L. BEATTIE,
Chief Mechanical Engineer.

Workshop Manager, Hillside.

Please put this work in hand as instructed above.

(Signed) H. H. JACKSON,
Loco. Engineer.
13/3/1908.

RETURN III.

RETURN, RECEIVED FROM THE CHIEF MECHANICAL ENGINEER, OF COMPARATIVE COST OF LOCOMOTIVES ERECTED AND PLACED ON LINE, with Additional Columns showing Cost of Locomotives Manufactured in Government Workshops, with 33⅓ per Cent. Commission Charged on Labour and Material.

Date.	Type.	Number built or imported.	Weight.	Wages.	Material.	15 per Cent. Commission.	Commission at 15 per Cent., Total.	Cost per Ton (Commission at 15 per Cent. on Government Engines).	Commission at 33⅓ per Cent.	Total Cost per Engine (Commission at 33⅓ per Cent.).	Cost per Ton (Commission at 33⅓ per Cent.).	Remarks.
			Tons cwt. qrs.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	
Feb., 1897 ..	U, Addington ..	4	47 6 1	2,339 15 3	1,720 12 8	608 0 2	4,668 8 1	98 13 3				
Nov., 1899 ..	U, Addington ..	4	47 6 1	2,088 9 11	1,646 16 6	560 5 11	4,295 12 4	90 16 0	1,234 8 8	4,937 14 9	104 7 0	
Nov., 1903 ..	U, Addington ..	1	47 6 1	2,019 6 11	1,294 17 2	497 12 4	3,811 16 5	80 11 5				
Nov., 1899 ..	WA, Hillside ..	2	31 14 0	1,659 3 5	1,128 13 9	418 3 6	3,206 0 8	101 2 8	929 5 8	3,717 2 10	117 5 0	
May, 1903 ..	WA, Hillside ..	3	31 14 0	1,531 7 4	1,049 3 9	377 17 5	2,958 8 6	93 6 3	860 3 8	3,440 14 9	108 10 0	
May, 1903 ..	B, Addington ..	6	49 19 0	2,450 13 5	1,718 9 6	625 17 6	4,795 0 5	96 0 0	1,389 14 4	5,558 17 3	111 6 0	
Sept., 1905 ..	WF, Addington ..	10	33 16 0	1,543 1 0	1,081 18 0	393 14 10	3,018 13 10	89 6 5	874 19 8	3,499 18 8	103 10 10	Includes cost of patterns.
Jan., 1906 ..	WF, Hillside ..	6	33 15 0	1,323 18 10	961 16 9	342 17 5	2,628 13 0	77 15 7	761 18 6	3,047 14 1	90 3 4	
May, 1907 ..	A compound, Addington (first order)	4	55 4 2	3,012 19 2	1,789 1 8	720 6 2	5,522 7 0	99 19 9	Not commented on in report.			Includes cost of patterns, Exhibition engine, alterations and improvements.
March, 1908	A compound, Addington (second order)	3	57 5 2	2,531 4 4	1,779 0 2	646 10 8	4,956 15 2	86 10 11	1,436 14 10	5,746 19 4	100 6 0	
Feb., 1900 ..	B, Sharp-Stewart ..	4	49 19 0	..	..	..	3,378 0 0	67 12 7	..	..	..	
Feb., 1900 ..	UA, Sharp-Stewart ..	6	47 6 1	..	..	..	3,199 13 4	67 12 7	..	..	..	
Sept., 1901 ..	UB, Baldwin ..	10	44 7 2	..	..	..	2,655 0 0	59 16 7	..	..	..	
Nov., 1901 ..	UC, Sharp-Stewart ..	10	47 6 1	..	..	..	3,396 0 0	71 15 7	..	..	..	
Feb., 1902 ..	UB, Brooks ..	1	47 10 1	..	..	..	2,884 17 9	60 14 5	..	..	..	
March, 1902	UB, Richmond ..	1	43 19 3	..	..	..	3,096 19 5	70 8 1	..	..	..	
April, 1902 ..	Q, Baldwin ..	13	48 3 3	..	..	..	2,791 0 0	57 18 5	..	..	..	
N.Z., 1905 ..	WF, A. and G. Price	10	33 16 0	..	..	..	2,940 0 0	86 19 8	..	..	..	Contract, £2,800; W.H.B., £140.
N.Z., 1906–09	A compound, A. and G. Price	20	57 5 2	..	..	..	4,228 0 0	73 16 4	..	..	..	Contract, £3,998; W.H.B., £210; completing painting, £20.
			Supplied by Railway Department.						Supplied by Board.			By Railway Department.

NOTES (by Railway Department).—For all locomotives built by Messrs. A. and G. Price, Thames, the cost of Railway Department's inspection at builders' works during construction has not been included in above totals. For each Class A locomotive cost of inspection averages £50, and for each Class WF locomotive £40.

For engines built outside New Zealand the details of labour and material are not available, but the totals include freight and erecting charges.

The B and UA engines built by Sharp, Stewart, and Co. were contracted for at a lump sum; the proportionate costs have been estimated on the basis of relative weight.

RETURN IV.

STATEMENT SHOWING OUTPUT OF IRON, BRASS, AND STEEL FOUNDRIES AT ADDINGTON FOR YEAR 1908—VIZ., FROM 5TH JANUARY, 1908, TO 2ND JANUARY, 1909.

[As supplied by Railway Department.]

——	P.E. 1/2/8.	P.E. 29/2/8.	P.E. 31/3/8.	P.E. 25/4/8.	P.E. 23/5/8.	P.E. 20/6/8.	P.E. 18/7/8.	P.E. 15/8/8.	P.E. 12/9/8.	P.E. 10/10/8.	P.E. 7/11/8.	P.E. 5/12/8.	P.E. 2/1/9.	Total.
Iron-foundry—														
Staff—														
Moulders at 11/6	..	..	..	..	..	..	..	1	1	1	1	1	1	
,, 10/6	10	10	10	10	10	10	11	10	10	9	9	10	10	
,, 10/	6	6	7	7	7	8	8	9	9	10	10	8	9	Average number of staff per period, 25.
,, 9/6	1	1	1	1	1	1	1	1	1	1	1	1	1	
,, 9/	..	..	..	..	..	..	..	1	1	1	1	1	1	
Apprentices at 5/	1	1	1	1	1	1	1	..	..	..	..	..	..	
,, 1/6	..	..	..	..	..	..	..	..	2	2	2	2	2	Average issues per period, 50½ tons.
Labourers and fettlers at 10/	1	1	1	1	1	1	1	1	1	1	1	1	1	
Ditto 9/ ..	1	1	1	1	1	1	1	1	1	1	1	1	1	
,, 8/6 ..	2	2	1	2	2	2	2	2	2	2	2	2	2	
Total staff ..	22	22	22	23	23	24	25	26	28	28	28	27	28	
Issues per period—	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.
Castings, 7 lb. and under	1 7 1 25	0 13 2 4	3 0 1 13	1 5 3 0	1 19 3 22	1 15 1 24	2 17 3 18	3 10 2 4	2 9 1 1	3 16 0 19	2 0 2 4	0 16 3 7	1 1 1 3	26 15 0 4
,, over 7 lb.	58 11 1 7	56 1 1 21	73 4 2 27	40 10 3 2	35 10 1 18	37 8 0 13	52 6 2 19	43 17 2 1	44 16 0 0	41 13 3 6	58 4 0 25	42 2 2 22	45 19 2 21	630 7 1 14
Total ..	59 18 3 4	56 14 3 25	76 5 0 12	41 16 2 2	37 10 1 12	39 3 2 9	55 4 2 9	47 8 0 5	47 5 1 1	45 9 3 25	60 4 3 1	42 19 2 1	47 0 3 24	657 2 1 18
Brass-foundry—														
Staff—														
Moulders at 10/6	3	3	3	3	3	3	3	3	3	3	3	3	3	
,, 9/6	1	1	1	1	1	1	1	1	1	1	1	1	1	Average number of staff per period, 7.
Apprentices at 2/	1	1	1	1	1	1	1	1	1	1	1	1	2	
,, 1/6	..	..	..	..	..	..	..	..	1	1	1	1	..	
,, 1/	1	1	1	1	1	1	1	1	..	..	..	..	..	Average issues per period, 4½ tons.
Labourers at 5/6	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total staff ..	7	7	7	7	7	7	7	7	7	7	7	7	7	
Issues per period ..	T. c. q. lb. 4 9 1 15	T. c. q. lb. 3 5 1 0	T. c. q. lb. 3 7 2 15	T. c. q. lb. 3 14 0 26	T. c. q. lb. 3 8 3 10	T. c. q. lb. 6 9 0 14	T. c. q. lb. 4 15 3 12	T. c. q. lb. 5 14 0 5	T. c. q. lb. 3 16 2 18	T. c. q. lb. 5 0 1 8	T. c. q. lb. 5 5 1 3	T. c. q. lb. 4 18 0 10	T. c. q. lb. 4 14 3 8	T. c. q. lb. 58 19 2 4

Steel-foundry—														
Staff—														
Moulders at 11/6	1	1	1	1	1	1	1	1	1	1	1	1	1	Average number of staff per period, 11. Average issues per period, 7½ tons.
,, 10/6	3	3	3	3	3	3	3	3	3	3	3	2	2	
,, 10/	2	2	3	3	3	3	3	3	3	3	3	5	5	
Labourers at 9/	1	1	1	1	1	1	1	1	1	1	1	1	1	
,, 8/6	1	1	1	1	1	1	1	1	1	1	1	1	1	
,, 8/3¾	..	..	..	..	..	..	..	..	..	..	..	..	..	
,, 8/	1	1	1	1	1	1	1	1	1	1	1	1	1	
,, 6/	..	..	..	..	..	..	..	..	..	..	..	1	1	
Furnacemen at 11/	1	1	1	1	1	1	1	1	1	1	1	1	1	
Total staff ..	10	10	11	11	11	11	11	11	11	11	11	13	13	
	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.	T. c. q. lb.
Issues per period ..	8 13 2 8	6 4 1 3	8 6 1 20	6 18 1 25	7 11 2 13	8 15 3 18	4 9 3 0	7 11 0 20	6 6 1 5	9 1 3 20	5 9 1 0	6 4 0 9	10 15 1 9	96 8 0 10

RETURN V.

POINTS AND CROSSINGS.

TENDERS RECEIVED BY PUBLIC WORKS DEPARTMENT FOR 133 SETS OF POINTS AND CROSSINGS, BEING 20 SETS 70 LB., 103 SETS 56 LB., AND 10 SETS 40 LB. JULY, 1906.

[Supplied by Railway Department.]

	£	s.	d.
New Zealand Railways	1,436	10	0
A. and T. Burt, Dunedin	1,500	10	0
Dispatch Foundry, Greymouth	1,715	0	0
Judd, Thames	1,779	15	0
Fraser, Auckland	2,448	15	0

The tender of New Zealand Railways was accepted.

[New Zealand Railways.]

CONTRACT FOR THE MANUFACTURE AND SUPPLY OF POINTS AND CROSSINGS.

SPECIFICATION.

1. THE work included under this contract is the manufacture and supply of one hundred sets of points and crossings, together with all necessary fittings, castings, fastenings, switch-boxes, and other equipments, and executing all work required to be done in the manufacture of the same, as shown upon the drawings attached hereto, and as set forth in this specification.

2. Fifty of the sets shall be made to a crossing-angle of 1 in 9, and fifty sets shall be made to a crossing-angle of 1 in 7½. The splice in the frog shall be made half for right hand and half for left hand in each angle. The measurement of the angle of crossing shall be for a right-angled triangle.

3. The points and crossings, including switches, stock-rails, wings, and frogs, shall be made from rails weighing 70 lb. to the lineal yard.

The Railway Department will supply the Contractor with the number of rails required for the work. These rails will be delivered at the nearest railway-station to the Contractor's works within two weeks of the Contractor applying to the Railway Storekeeper. Spare lengths made by cutting shall be returned to the Railway Department. Any further quantity of rails required by the Contractor shall be paid for by him.

Should the Railway Department fail to deliver the rails within the time specified, the Contractor shall have no claim for compensation of any kind, but he will be allowed a corresponding extension of time for the completion of his contract.

4. The ends of the frog-rails, wing-rails, and switches shall be properly drilled where requisite to take the bolts of the fish-plates, a sample of which will be supplied to the Contractor upon application.

5. The switch-rails are to be accurately bent and planed. The rods, bolts, keys, pins, and other wrought-iron work are to be cleanly forged, fitted, and finished. The guard-rails shall be bent to the forms shown, and holes drilled in them for the bolts through the distance-blocks. The contract does not include the cutting or boring of the rails to which the guard-rails are shown to be bolted on the drawings.

Rails requiring to be cut shall be cut by saw. No cut shall be made by "setts."

6. All bolts shall be cut with a full clean thread, and the nuts similarly tapped to a good fit.

The cotter-bolts shall have clean true slots, with the cotters accurately fitted to the same. All bolt-holes in rails shall be drilled.

7. All the slide-chairs shall be fitted smooth on the surface in contact with the foot of the rails, and where required the chairs shall be thickened for a portion of their length to form a raised fillet of the respective thicknesses shown on the drawings for each set.

8. All the switches shall have levers of the pattern lettered "A" on the drawings.

9. Blocks for guard-rails, frogs, and centres of wings, switch-boxes, weights for switch-handles, and sockets for switch-handles and connecting-rods to be of cast iron.

Switch-handles, bell-cranks, distance-rods, connecting-rods, and chairs, with their studs and collars, to be of wrought iron.

Rail-braces are to be of pressed steel.

10. Each set when finished shall be accurately fitted up at the works of the Contractor for the inspection of the Engineer, to whom notice shall be given when the set is ready for inspection. The several parts of each set are to be properly marked by letters or otherwise, and the whole sets are to be numbered consecutively.

11. The whole of the bolts and all other forgings shall be dipped while hot into boiled linseed-oil. After the inspection has taken place all the materials shall receive one coat of good anti-corrosive paint.

12. Each switch is to be delivered bound with stout wire to its stock-rail. Small ironwork and fittings shall be packed in strong wooden cases of convenient size for facility of transport. No package shall contain material belonging to more than one set of points and crossings, and each package must be distinctly marked outside with the number of the set it belongs to. Each crossing to be delivered fixed together complete.

13. A pattern set of points and crossings will be supplied to the Contractor, and this shall be returned to the Railway Department in good order on completion of the contract. The points and crossings supplied by the Contractor shall be in every respect equal to the pattern supplied.

14. All wrought iron used shall be of BB Crown iron, or other approved brand of equal quality, free from all defects, and all welds shall be perfectly sound, and free from burns, scale, or other defects.

15. All steel used shall be the best double-shear, of uniform quality, and shall show perfectly sound welds.

16. All castings shall be of the best cold-blast iron, perfectly sound, smooth, and free from all flaws and defects.

17. All steelwork required to be heated during the process of manufacture shall be carefully annealed after being worked to required shape. The points of frogs shall be hardened in the manner to be directed by the District Railway Engineer.

18. Progress-payments shall only be made on completed sets of points and crossings which have been passed by the Inspecting Officer.

19. The Contractor will be held responsible for all material delivered to him by the Railway Department, and also for any damage the goods may sustain in transport through defective packing.

20. The whole of the materials shall be delivered within six months from date of acceptance of tender at a railway-station or f.o.b. at Nelson, Greymouth, or Thames, and the Contractor shall state in his tender at which station he will deliver.

21. This specification shall be read in conjunction with the special and general conditions attached.

J. BURNETT,
Chief Engineer.

Wellington, 24th March, 1908.

These are the Special Conditions referred to in the annexed Bond signed by us.

.....

Witness:

(E.)

New Zealand Railways.

CONDITIONS OF CONTRACT FOR

SPECIAL CONDITIONS.

Clause 2 *of General Conditions.*

1. THE cheque to be deposited with the tender shall be drawn in favour of the Receiver-General's Deposit Account (and not to bearer or order) at the , and shall be for pounds sterling.

Clause 3 *of General Conditions.*

2. The penal sum for which a bond shall be executed shall be pounds sterling.

Clause 21 *of General Conditions.*

3. The date for the completion of the works shall be months from the date of acceptance of the tender—that is to say, the day of , one thousand nine hundred and .

4. The sum to be deducted or set off under clause of the General Conditions shall be pounds sterling a week.

Clause 24 *of General Conditions.*

5. The "period of maintenance" shall be months from and after the date when the Engineer in Charge shall have certified that all the works to be executed under the contract have been fully completed to his satisfaction.

Clause 29 of General Conditions.

6. The rates of payment under clause 29 of the General Conditions shall be per cent. of the value of the work actually done, and per cent. of the value of such materials, plant, and machinery on the ground as the Resident Engineer may approve as fit and necessary for the work.

NOTE.—The "Specifications of Works to be executed" must here follow, and the person intrusted with the preparation of the contract must be careful that it is here inserted and bound up with the other documents.

STATEMENT OF CONTRACTS FOR POINTS AND CROSSINGS LET BY PUBLIC WORKS DEPARTMENT DURING THE FIVE YEARS ENDED 31ST MARCH, 1909; showing Successful and Unsuccessful Tenderers' prices, the Weight of Rails used, &c.

[Supplied by Public Works Department.]

Name of Contractor.	Address.	Weight of Rail used.	—	Price per Set.	Total Amount.	—
May, 1905. 100 sets.		lb.		£ s. d.	£ s. d.	
Dispatch Foundry Company (Limited)	Greymouth	70	..	13 0 0	1,160 0 0	Accepted.
		56	..	11 0 0		
Burt, A. and T. (Limited)	Dunedin	70	..	14 5 0	1,232 10 0	
		56	..	11 10 0		
Cooper and Duncan (Limited) ..	Christchurch	70	..	18 0 0	740 0 0*	
		56	..	14 0 0		
Andersons (Limited)	,,	70	..	19 0 0	840 10 0*	
		56	..	15 7 0		Declined.
		70	1 in 9	20 0 0		
Duncan, P. and D. (Limited) ..	,,	70	1 in 7½	18 10 0	1,590 0 0	
		56	1 in 9	15 10 0		
		56	1 in 7½	13 10 0		
New Zealand Railways	,,	70	..	16 0 0	1,328 15 0	
		56	..	12 2 6		
June, 1906. 133 sets.						
		70	..	12 10 0		
New Zealand Railways	..	56	..	..	1,436 10 0	Accepted.
		40	..	10 10 0		
		70	..	13 0 0		
Burt, A. and T. (Limited)	Dunedin	56	..	11 0 0	1,500 10 0	
		40	..	10 15 0		
		70	..	15 0 0		
		56	1 in 9	13 0 0		
Dispatch Foundry Company (Limited)	Greymouth	56	1 in 7½	12 10 0	1,715 0 0	
		40	..	11 0 0		Declined.
		70	..	..		
Judd, C...	Thames	56	..	..	1,779 15 0	
		40	..	..		
		70	..	..		
Fraser and Son, G.	Auckland	56	..	..	2,448 15 0	
		40	..	..		

* 50 sets only.

From June, 1907, to February, 1909, orders have been given to New Zealand Railways Department for 55 lb. and 70 lb. sets, from £10 10s. to £11 10s. per set.

G. J. CLAPHAM, Accountant.

Public Works Department, Wellington, 1st April, 1909.

[P.W.D. 21920.

[Public Works Department.]

CONTRACT FOR THE MANUFACTURE AND SUPPLY OF POINTS AND CROSSINGS.

SPECIFICATION.

1. THE work included under this contract is the manufacture and supply of twenty sets of points and crossings for 70 lb. rails, one hundred and three sets for 56 lb. rails, and ten sets for 40 lb. rails, together with all necessary fittings, castings, fastenings, switch-boxes, and other equipments, and executing all work required to be done in the manufacture of the same, as shown upon the drawings attached hereto, and as set forth in this specification.

2. All the sets of the 70 lb. rails shall be made to a crossing-angle of 1 in 9; thirty-five of the sets of the 56 lb. rails shall be made to a crossing-angle of 1 in 9, and the remaining sixty-eight sets to an angle of 1 in 7½; and the ten sets of the 40 lb. rails to an angle of 1 in 7½.

3. The Government will supply the Contractor with the proper number of rails weighing about 70 lb., 56 lb., and 40 lb. respectively to the lineal yard. The rails for the switches, stock-rails, wings and frogs, and guard-rails shall be of steel. They will be delivered to the Contractor at the railway-station at one of the following places, namely: Auckland, Wellington, Christchurch, Timaru, Dunedin, Nelson, Invercargill, Greymouth, or Thames, according as the Contractor may request in writing, and within one month of the acceptance of tender. Should the Government fail to thus deliver the rails within the specified time the Contractor shall have no claim for compensation of any kind, but he will be allowed a corresponding extension of time for the completion of his contract.

4. All wrought-iron used shall be of BB Crown iron, or other approved brand of equal quality, free from all defects, and all welds shall be perfectly sound, and free from burns, scale, or other defects.

5. Steel shall be the best double-shear, of uniform quality, and shall show perfectly sound welds.

6. All castings shall be of the best cold-blast iron, perfectly sound, smooth, and free from all flaws and defects.

7. All steelwork required to be heated during the process of manufacture shall be carefully annealed after being worked to required shape.

8. The ends of the frog-rails, wing-rails, and switches shall be properly drilled where requisite to take the bolts of the fish-plates, a sample of which will be supplied to the Contractor upon application.

9. The switch-rails are to be accurately bent and planed. The rods, bolts, keys, pins, and other wrought-iron work are to be cleanly forged, fitted, and finished. The guard-rails shall be bent to the form shown, and holes drilled in them for the bolts through the distance-blocks. The contract does not include the cutting or boring of the rails to which the guard-rails are shown to be bolted on the drawings.

10. All bolts shall be cut with a full, clean thread, and the nuts similarly tapped a good fit. The cotter-bolts shall have clean true slots, with the cotters accurately fitted to the same. All bolt-holes in rails shall be drilled.

11. All the slide-chairs shall be fitted smooth on the surface in contact with the foot of the rails, and where required the chairs for the 70 lb. rails shall be thickened for a portion of their length to form a raised fillet of the respective thicknesses shown on the drawings for each set.

12. All the switches for the 1-in-9 crossings shall have levers of the pattern lettered "A" on the drawings; all other levers shall be of the pattern lettered "B."

13. Blocks for guard-rails, frogs, and centres of wings, switch-boxes, and weights for switch-handles, and sockets for switch-handles and connecting-rods, to be of cast iron.

Switch-handles, bell-crank, distance-rods, connecting-rods, chairs with their studs and collars and braces, to be of wrought iron.

14. Each set when finished shall be accurately fitted up at the works of the Contractor for the inspection of the Engineer, to whom notice shall be given when the set is ready for inspection. The several parts of each set are to be properly marked by letters or otherwise, and the whole sets are to be numbered consecutively.

15. The whole of the bolts and all other forgings shall be dipped while hot into boiled linseed-oil. After the inspection has taken place all the materials shall receive one coat of good anti-corrosive paint.

16. Each switch is to be delivered bound with stout wire to its stock-rail. Small ironwork and fittings shall be packed in st ong wooden cases of convenient size for facility of transport. No package shall contain material belonging to more than one set of points and crossings, and each package must be distinctly marked outside with the number of the set it belongs to. Each crossing to be delivered fixed together complete.

17. The Contractor will be held responsible for all Government material delivered to him, and also for any damage the goods may sustain in transport through defective packing.

18. The whole shall be delivered at the railway-station at Auckland, Onehunga, Wellington, Christchurch, Timaru, Invercargill, or Dunedin, or f.o.b. at Nelson, Greymouth, or Thames, and the Contractor shall state in his tender at which station he will deliver.

19. At each of these stations Contractors may inspect a sample pattern of points and crossings for the 56 lb. rails only.

It is hereby stipulated that the several sets of points and crossings for the 70 lb. and for the 56 lb. rails shall be delivered as specified on next sheet (No. 3) hereof.

P. S. HAY,
Engineer-in-Chief.

Public Works Office,
Wellington, May, 1906.

List of Drawings.

Drawing No. 1.—Standard drawing points and crossings for 70 lb. rails—3 sheets.
Drawing No. 2.—Standard drawing points and crossings for 56 lb. rails—3 sheets.
Drawing No. 3.—Standard drawing points and crossings for 53 lb. rails—1 sheet; to which design, but modified to suit the section of the 40 lb. rail, the ten sets of 40 lb. points and crossings shall be made.

Dates for Completion and Delivery, and Abstract from Conditions of Contract.

Date for completion of the 70 lb. permanent-way sets: Two months after delivery of rails—that is to say, the day of , 190 .
Lot No. 1—1-in-9 crossing: Ten sets in one month.
Lot No. 2— ,, Ten sets in two months.
Date for completion of the 56 lb. permanent-way sets: Seven months after delivery of rails—that is to say, the day of , 190 .
Lot No. 1—1-in-9 crossing: Ten sets in one month.
Lot No. 2— ,, Twelve sets in two months.
Lot No. 3— ,, Thirteen sets in three months.
Lot No. 4—1-in-7½ crossing: Ten sets in four months.
Lot No. 5— ,, Ten sets in five months.
Lot No. 6— ,, Twelve sets in six months.
Lot No. 7— ,, Twelve sets in seven months.
Lot No. 8— ,, Twelve sets in eight months.
Lot No. 9— ,, Twelve sets in nine months.
Penalty: £5 per week for each lot undelivered after date as fixed above for its delivery.
Deposit: £60.
Bond: £160.
Rates of progress-payments: 90 per cent. of value of work delivered as specified.

Tenders received by New Zealand Railways Department for 100 sets of 70 lb. Points and Crossings, being 50 sets 1 in 7½, and 50 sets 1 in 9; Railway Department to supply Rails. March, 1908.

[Supplied by Railway Department.]

	£
Messrs. J. J. Niven and Co., Napier	5,800
Cooper and Duncan, Christchurch	3,125
Railways Department	1,500

The tender of Railways Department was accepted.

Particulars of Cost of Points and Crossings manufactured at Addington Workshops.

[Supplied by Railway Department.]

Description.	Cost per Set.			
	Wages.	Material.	Commission, 15 per Cent.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
70 lb., 1 in 9	6 12 5	17 14 7	3 13 0	28 0 0
,, 1 in 7½	6 1 9	16 1 9	3 6 6	25 10 0
56 lb., 1 in 9	6 12 5	15 11 1	3 6 6	25 10 0
,, 1 in 7½	6 4 2	15 1 11	3 3 11	24 10 0
53 lb., 1 in 9	6 8 7	10 14 5	2 11 6	19 14 6
,, 1 in 7½	6 0 1	10 4 11	2 8 9	18 13 9

STATEMENT SHOWING OUTPUT OF POINTS AND CROSSINGS, ETC., AT ADDINGTON FOR 1908—VIZ., FROM 5TH JANUARY, 1908, TO 2ND JANUARY, 1909.

[Supplied by Railway Department.]

—	Period ending												Total.
	1/2/8.	29/2/8.	31/3/8.	25/4/8.	23/5/8.	20/6/8.	18/7/8.	15/8/8.	12/9/8.	10/10/8.	7/11/8.	5/12/8.	2/1/9.	
Staff—														
Fitters at 11/6	..	..	..	..	..	..	..	..	..	..	..	1	1	
,, 11/-	1	1	1	1	1	1	1	1	1	1	1	..	..	
,, 10/6	1	1	1	..	1	..	..	..	..	4	..	1	1	
,, 10/-	3	5	4	4	5	5	5	5	6	5	5	4	3	
,, 9/6	1	1	1	2	1	2	2	3	4	1	2	2	1	
Blacksmiths at 10/6	4	4	3	2	1	2	2	2	2	3	4	2	2	
,, 10/-	2	1	3	2	1	3	6	6	4	4	5	3	2	
,, 9/6	1	1	1	2	1	1	2	1	1	1	..	..	..	
Boilermakers at 10/-	..	..	..	..	..	1	..	..	..	..	..	..	..	
,, 9/6	..	1	..	1	1	..	1	2	1	2	1	1	1	
Strikers, holders-up, and labourers at 9/-	4	3	6	3	4	5	6	4	5	5	7	4	3	
Ditto at 8/6	2	1	2	4	1	1	2	4	2	3	3	2	1	
,, 8/-	8	10	10	2	13	9	4	15	13	10	10	6	6	
,, 5/- and 4/-	1	2	1	1	3	2	4	4	3	5	4	3	3	
,, 3/6	..	1	1	2	2	1	1	..	..	..	..	..	..	
Machinists at 11/-	..	..	..	..	..	..	..	..	..	..	1	1	1	
,, 10/-	1	1	1	1	..	1	2	1	1	1	..	..	..	
,, 9/6	..	..	..	..	1	..	..	..	..	..	..	..	..	
,, 9/-	3	3	4	1	4	4	4	5	5	6	5	4	3	
,, 8/6	5	6	1	5	5	7	5	6	7	5	4	3	3	
,, 8/-	2	3	3	2	3	1	10	2	2	10	1	..	..	
,, 7/-	..	..	..	..	..	..	..	..	..	..	..	1	1	
,, 6/-	..	1	1	1	2	2	2	2	..	2	2	1	..	
,, 5/6	1	1	1	1	1	1	..	..	3	1	1	..	..	
,, 5/-	1	1	3	1	2	3	3	1	2	1	1	1	1	
,, 4/6	1	..	1	..	..	..	..	..	..	1	..	..	..	
Apprentices at 2/6	..	..	..	..	..	..	1	1	..	..	..	..	..	
,, 2/-	1	..	..	..	1	..	1	1	..	1	1	..	..	
,, 1/6	1	1	3	2	3	2	2	2	1	1	1	1	2	
,, 1/-	4	3	2	1	2	2	1	1	1	1	..	..	..	
Carpenter at 10/6	..	..	..	..	..	..	..	1	..	..	..	..	..	
Totals	48	52	54	41	59	56	67	70	64	74	59	41	35	
Issues—														
Points and crossings, 70 lb.	14	34	48	..	16	43	57	60	60	..	23	67	33	455
,, 56 lb.	..	1	..	..	..	..	..	..	..	..	..	..	..	1
,, 55 lb.	6	..	..	40	20	..	..	..	..	40	40	..	..	146
,, 53 lb.	18	32	17	..	17	1	..	..	..	..	..	..	..	85
Double slips, 70 lb.	2	..	..	..	..	..	1	1	..	1	..	..	..	5
,, 56 lb.	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Three throws, 70 lb.	..	..	..	..	..	..	..	..	..	..	..	1	2	3
,, 53 lb.	..	1	..	..	..	1	..	..	1	..	..	..	..	3
Crossings, 70 lb.	..	..	..	..	..	..	..	..	1	..	2	..	..	3
,, 56 lb.	2	..	..	..	..	..	..	..	..	..	..	..	..	2
,, 53 lb.	..	..	..	..	..	9	..	..	..	..	..	..	12	21
Single slips, 70 lb.	..	..	..	..	..	..	..	..	1	..	..	..	..	1
,, 53 lb.	..	..	1	..	..	..	..	..	..	..	..	..	..	1
Scissors, 70 lb.	..	..	1	..	..	..	..	3	..	..	2	1	2	9
,, 53 lb.	..	..	..	..	..	..	..	..	1	..	..	..	..	1
Diamond crossings, 70 lb.	..	1	..	2	1	1	..	3	2	3	3	1	2	19
,, 53 lb.	1	1	1	..	..	4	2	..	..	..	..	..	..	9
Point-boxes	..	..	12	..	..	12	..	6	4	..	2	..	..	36
Frogs	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Switches, 70 lb.	8	..	48	..	46	22	1	5	..	20	..	..	..	150
,, 56 lb.	..	2	6	..	..	..	3	..	2	..	2	..	4	19
,, 53 lb.	1	..	5	20	10½	22	8	..	..	..	..	..	..	66½
Stock rails, 70 lb.	..	..	12	..	..	2	..	6	..	..	..	..	..	20
,, 56 lb.	..	2	2	..	..	..	..	..	..	..	..	..	..	4
,, 53 lb.	..	..	5	..	..	..	..	..	..	..	..	..	..	5

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