1907.
NEW ZEALAND.

ROTORUA RAILWAY ACCIDENT INQUIRY

(REPORT ON), TOGETHER WITH EVIDENCE.

Laid on the Table of the House by leave.

REPORT.

SIR,— Auckland, 9th September, 1907.

I have the honour to inform you that, in accordance with the instructions contained in your letter to me of the 20th ultimo (hereto annexed), I have held an inquiry under "The Government Railways Act, 1900," into the circumstances surrounding and cause of the railway accident therein referred to, and now forward herewith—

(1.) Minutes of the proceedings, evidence of the witnesses examined on oath, and index thereto; and

(2.) The exhibits referred to in the evidence, and a list thereof.

On Saturday, the 3rd ultimo, the Stationmaster at Putaruru, acting under instructions from the Railway Traffic Department at Auckland (see telegram, Exhibit No. 10), held the No. 11 train, *en route* for Rotorua, at Putaruru till 7 p.m., in order that the "X" special train from Putaruru to Mamaku might be attached thereto. After some shunting had been done these trains were accordingly amalgamated, and when marshalled consisted of two engines, van, trucks, passenger-carriage, and guard's van, as shown in the diagram, Exhibit No. 7. The diagram also shows the length and estimated weight of the train. The train was fully equipped with the "Westinghouse quick-action automatic brake" (the best brake known to the railway world: See evidence of Mr. Beattie, Mr. Marchbanks, and Mr. Robertson), and each vehicle, including the engines, was also fitted with the usual hand-brakes.

The engines, vehicles, brakes, &c., were apparently in good working-order and condition when the train left Putaruru.

Guard Lowe, who superintended the shunting operations, marshalled the train, and took charge of it when it left Putaruru, was killed, and his evidence was therefore not available; but the testimony of the Stationmaster, the engine-drivers, and men who were engaged in the shunting operations and in the coupling of the engines and vehicles at Putaruru was to the effect that, before the train left, the brake and other couplings were all complete and in good order, that the hose-cocks on the brake-tube were all fully open, that the usual brake (Westinghouse) test was properly made, and that the action of the blocks on the wheels of the guard's van at the rear of the train, as seen by some of the witnesses, indicated that the Westinghouse brake was apparently in good order and acting satisfactorily from the engine, at the head of the train, to the hindermost vehicle—the guard's van.

The train left Putaruru shortly after 7 p.m. and in due course arrived at Ngatira, where it stopped for some minutes to fill the water-tanks on the engines prior to ascending the incline towards Mamaku. No brake-test was made at this station, as, according to the existing practice, such tests are not made at intermediate stations, and the guard, apparently, did not consider that it was necessary to have another test made there.

The train left Ngatira, and at once proceeded to climb the incline towards Mamaku, a grade of about 1 in 36 to 1 in 40 (see plan, Exhibit No. 6).

It was a clear night, no wind or rain. The track was in good order, but, owing to frost, the rails were "greasy," and, the load being a heavy though not an excessive one, the train proceeded very slowly up the incline.

When it reached the 48-mile peg, or thereabouts, the second engine—*i.e.*, the engine next to the front van—"went off her beat," and the engine-drivers (Taylor and Cooper) considered it necessary to stop the train to enable them to examine the engine and ascertain if possible what was the matter with the machinery. The Westinghouse brake was accordingly applied, the train was brought to a standstill, and they proceeded to examine the engine. Being unable to discover any defect in the machinery, they, after consultation, decided to detach the engines from the train and run them slowly some yards along the line so as to be able to observe the action of the machinery while the engine was in motion. Having so determined, they, according to the evidence, proceeded to recharge the reservoirs and tubes, and again applied the Westinghouse brake to the train before uncoupling the engines (see evidence of the engine-drivers and firemen). Having done this, they, apparently believing that the Westinghouse brake was acting properly throughout the train and would hold the train without the aid of the engines and hand-brakes, without warning or communicating with the guard and obtaining his consent and directions, and without applying any hand-brakes, uncoupled the engines, and left the train on the incline. In so doing, they, in my opinion, committed a breach of—

(*a.*) The instructions *re* "working of trains on ascending and descending steep inclines" (see foot of page 6 of Appendix to Working Time-tables, 1898, Exhibit No. 2; and see also foot of page 24;
(*b.*) Rule 231, at page 91 of the Rules and Regulations (1907 edition) to be observed by members of the New Zealand Government Railways Service (Exhibit No. 1); and
(*c.*) Rule 269, (*a*), at page 106 of said Exhibit No. 1.

Immediately after uncoupling the engines from the train one of the engine-drivers (Taylor) put down only three truck hand-brakes next to the front van, and Engine-driver Cooper went into the van at the head of the train and applied the hand-brake. Having done this they returned to their engines and instructed the firemen to give the engines a little steam and run them slowly along the line while they walked alongside to observe the movements of the machinery, &c. This was accordingly done, and, when they had proceeded some 50 or 60 yards, they saw that the train was moving down the incline. They at once got on their engines and went in pursuit, but before they could overtake the train it gathered speed, rushed down the incline past Ngatira, and finally left the rails as stated in the evidence (see plan, Exhibit No. 6). I am satisfied that in endeavouring to overtake and rescue the train the engine-drivers did all that could be reasonably expected of them.

It is clear that when the engines left the train on the incline it was not sufficiently braked. Care was not taken, before the engines were detached, to apply a sufficient number of hand-brakes to prevent the possibility of the train breaking away.

The condition of the brake-blocks on the vehicles when examined after the accident, and the absence of any signs, on the wheels, of skidding, favours the inference that the blocks were not properly gripping the wheels when the train got away; and, further, that, if the Westinghouse brake was properly applied by Engine-driver Taylor before the engines were detached and it did not operate on the whole train, it is not improbable that its failure to so operate was due to the fact that a cock at or near the head of the train had been closed for some considerable time, and that consequently the air in the tubes and reservoirs on the vehicles had completely leaked out, and left the brakes on the train inoperative at the time the engines were detached. If the guard had been consulted by the engine-drivers, and if a careful brake-test had been made by them before the engines were detached, all such omissions or defects, if they existed, would no doubt have been immediately detected and remedied, and the train also thoroughy secured with the hand-brakes before the engines were detached.

I have, &c.,
CHAS. C. KETTLE.

The Right Hon. the Minister for Railways.

SIR,— Head Office, Wellington, 20th August, 1907.

With reference to the accident that occurred on the Rotorua line on the 3rd instant, I have the honour to inform you that it has been decided to hold an inquiry into the circumstances, to ascertain, if possible, the cause which led to the accident. In pursuance, therefore, of the powers contained in section 48 of "The Government Railways Act, 1900," I hereby appoint you as the person to hold the inquiry, and shall be glad if you will forward me a report setting out your conclusions as to the cause of the accident as early as possible after the inquiry is finished.

I have, &c.,
J. G. WARD,
Minister for Railways.

District Judge Kettle, Auckland.

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In the matter of "The Government Railways Act, 1900," and in the matter of an accident to a mixed train at Ngatira on the Rotorua Government Railway line on the evening of the 3rd August, 1907.

MINUTES OF PROCEEDINGS.

EVIDENCE, &c., on an Inquiry under the said Act into the Cause of the said Accident, held by CHARLES CARGILL KETTLE, a Judge of the District Court, under the Direction of the Right Hon. the Minister for Railways.

WEDNESDAY, 21ST AUGUST, 1907.

A demonstration of the Westinghouse brake, &c., was given in the railway-station yard, Auckland.

The following were present: C. C. Kettle, Esq. (District Judge), and Messrs. Prendergast (counsel for Railway Department), F. Earl and F. E. Baume, K.C. (counsel for locomotive and traffic employees), Buxton (Chief Traffic Manager), A. V. McDonald (District Mechanical Engineer), G. Bowles (Foreman of Locomotive Department), Fox (Brake Engineer), Simpson (Car Inspector), and Robertson (representative, Westinghouse Brake Company). Drivers Coopers and Taylor were also present.

THURSDAY, 22ND AUGUST, 1907.

Magistrate's Court, Auckland.

The Right Hon. the Minister's direction to Mr. District Judge Kettle to hold the inquiry under section 48 of "The Government Railways Act, 1900," and notice appointing place and time for inquiry, read as follows:—

To Mr. District Judge Kettle. Wellington, 20th August, 1907.

You are hereby appointed and directed to hold an inquiry under section 48 of "The Government Railways Act, 1900," to ascertain the cause of the accident at Ngatira, on the Rotorua Railway line, on the 3rd instant.

J. G. WARD,
Minister for Railways.

PUBLIC NOTICE.

An inquiry, under "The Government Railways Act, 1900," into the cause of the railway accident which occurred on the Rotorua Railway line on the night of the 3rd August, 1907, will, by direction of the Right Hon. the Minister for Railways, be held by me at the Magistrate's Court House (upstairs Court-room) to-morrow, at 10 a.m.

CHAS. C. KETTLE,
Judge of District Court, and S.M.

Dated this 21st August, 1907.

Upon inquiry opening—

Mr. Prendergast appeared on behalf of the Railway Department.

Messrs. F. E. Baume, K.C., and F. Earl appeared on behalf of the locomotive and traffic employees (instructed by Amalgamated Society of Railway Servants).

The Inspector of Police at Auckland and Thames intimated that they did not wish to be present.

Inquiry adjourned at request of counsel until 11 a.m. on the 23rd instant at St. Andrew's Hall, Lower Symonds Street.

FRIDAY, 23RD AUGUST, 1907.

This deponent, ALFRED LUTHER BEATTIE, being sworn saith:—

I am Chief Mechanical Engineer for the New Zealand Government Railways, and have occupied that position for seven years, with a total service of thirty years. I know locality where accident occurred. I produce a copy of New Zealand Railways Rules and Regulations (Exhibit No. 1), also Appendix to Working Time-tables (see pages 6 and 25) (Exhibit No. 2). I also produce copy of instructions issued to trainmen, as to using Westinghouse air-brake (Exhibit No. 3). I also produce copy of Westinghouse Air-brake and descriptions (Exhibit No. 4). The rules and instructions are issued to all guards, drivers, and firemen, and it is their duty to make themselves familiar with them. I produce copy of diagram showing principle of Westinghouse automatic air-brake (Exhibit No. 5). It shows principle correctly but certain details are left out. I produce plan showing section of railway from where train was detached to the point where train ran over the embankment (Exhibit No. 6). It shows the grade and curves. About two miles beyond where the engine was detached is a comparatively level station-yard, but for two miles beyond that the same grade exists. The water-tank is two miles and a quarter further ahead of where the engine was detached. It is a continuous down grade from where the engine stopped at Ngatira. In the ordinary course of things there was no necessity to apply the brakes. The Ngatira Railway-station is a quarter of a mile of level. From Ngatira to Putaruru there is about two miles of 1 in 36¼ down grade. Starting a train from Putaruru there was no necessity to use the brakes for down grade. I also put in a diagram showing the length, weight, and general arrangement of the train as it left Putaruru (Exhibit No. 7). The whole of that train was equipped with the Westinghouse quick-action automatic brake—the best known to the railway world. It was fitted from one end to the other. In addition to that, every vehicle, including the engines, were fitted with hand-brakes also, without exception. The guard's van had a screw brake which applied brake-locks to every wheel of the van. The passenger had a similar brake which applied a brake-block to every wheel. Each of the trucks had an ordinary hand-brake in addition to the Westinghouse brake. The ordinary hand-brake puts a brake on one wheel only. The hand-brakes would not necessarily be all on the same side of the train. The front van had a screw brake similar in every respect to that on guard's van. The tender had also a screw brake which applied eight brake-blocks. The front engine was similarly equipped to the tender but applied to six wheels. The weight behind the engines was about 226¼ tons. The total length of the train including engines was 479 ft. Approximately the load for the front engine would be about 100 tons, and the load for the second engine would be about 140 tons. The second engine was the stronger of the two by reason of its design. It was made in 1878 by the Baldwin Locomotive Company of Philadelphia, and was placed on the New Zealand railways about the end of 1878 or beginning of 1879. Within the last half-dozen years the boiler has been renewed—that is, the boiler now in it is an absolutely new one, built in our workshops at Christchurch. The various portions of running-gear, wheel tires and axles, and working-parts generally have been from time to time refitted and renewed as found necessary, so that the original identity of that engine has been largely lost by reason of those refittings. The engine has been practically rebuilt. That engine has not been on this section more than about three months. It came from Hurunui–Bluff Section. It was the duty of Mr. A. V. McDonald, Locomotive Engineer, to ascertain its condition when received and its condition when turned out of Railway Workshops at Newmarket. The engine came up in pieces, and was re-erected at New-

market. Assuming the Westinghouse brake was in good order and condition, it was amply sufficient to hold that train, assuming the servants knew how to work it. The weight, 226 tons, is that of the trucks and contents exclusive of the engines, and was well within maximum power of those engines.

Baume: With reference to Appendix to Working Time-table, Taylor has not had one for about two years. He had had one and lost it, and he applied on two occasions for another copy. Cooper is practically in the same position. He has also applied for a copy.

Court: Engine-drivers and guards are taught how to use the brakes. When they consider themselves proficient we take a certificate from them to that effect. They are all instructed and are examined by an officer, and after they feel they are conversant with the brake they are asked to sign a certificate, in which they state they are conversant with the working of the brakes. The man gets a certificate which enables him to act as driver or fireman, which carries with it a knowledge of the brakes. I put in Taylor's and Cooper's certificates (Exhibits Nos. 8 and 9). I know instructions were given to have the wreck carefully examined before any portion was removed.

A. L. BEATTIE.

Taken and sworn at Auckland, this 23rd day of August, 1907, before me,—CHAS. C. KETTLE, D.J.

MEMO.—At this stage Mr. Harris, Stationmaster, was called as a witness. The Court of Inquiry ordered that while his evidence was being taken the engine-drivers and others who were working the train should leave the Court till called, but that their counsel, Messrs. Baume, K.C., and Earl, might remain to watch the proceedings on their behalf. Messrs. Baume and Earl thereupon intimated that they would retire from the inquiry, and would advise their clients not to attend to give evidence, unless summoned to do so.

This deponent, EDWARD JOHN HARDY HARRIS, being sworn, saith:—

I am Stationmaster at Putaruru. I remember Guard Lowe arriving at 5.20 p.m. on the 31st August with the train from Frankton Junction. The necessary shunting was done and the train (the whole train) was transferred to a side track. We would finish shunting about 5.45 or 5.50. After the train was put on the side line the engine was attached to the train. It had been detached for watering and shunting. It was Taylor's engine that shunted the train on to the side line. It is known as the T engine. The train was not despatched until 7 p.m. She was detained until that hour on the District Traffic Manager's instructions, which I would receive about 5.30. I received instructions by wire. Cooper's train was due at Putaruru at 6.35 and arrived at 6.38. Cooper's train did what shunting was required and stopped by the station. Taylor's engine pulled out. The train was arranged under my instructions. It is the guard's duty to make up the trains under my instructions. Guard Lowe was in charge of the shunting operations. Cooper's train was shunting about twenty-five minutes. While Cooper was doing the necessary shunting his van was on main line opposite the office-door. He stood there twenty or twenty-five minutes. It was standing there alone; all the wagons were detached. The wagons which were going on to Rotorua were amalgamated with Taylor's train. The amalgamation was made under the Traffic Manager's directions. No reason was given for the amalgamation. In the ordinary course the train which arrived at 6.38 was to go to Mamaku. On completion of necessary shunting the van off Cooper's train was put behind the tender of the second engine. After the train was arranged Cooper coupled on. The train left ten minutes late. Guard Lowe had charge of the shunting operations. There might be three or four men engaged coupling. We have a porter at Putaruru and a porter on the train, an acting-guard, and Guard Lowe, and all might be engaged in coupling. To the best of my belief it was Porter Tyer coupled the engines. I saw him walking alongside the train with a lamp in his hand as if he had completed shunting operations. At this time I was standing on the edge of the platform. I had no lantern in my hand. It was a fine night—a starlight dark night. The track was fairly dry. It was a frosty night. The rail itself would be greasy. I took it to be Porter Tyer, but I could not be positive it was he. The train left about five minutes afterwards. I gave the signal for it to leave. I gave the guard "Right away," and he gave the signal to the driver and the train drew out of the station. The train was on what we call the "Dining-car road"—our second line. I should judge there would be a test made of the Westinghouse brake, judging from what I saw of the guard's motions. I saw part of the test applied. I saw the brake-block come off the wheel of the last van as the train started. I had occasion to go to the guard's van at the moment, and saw the brake-block come off the wheel of guard's van. I knew the guard was signalling the driver to apply the brakes. The signal is red–white–red to apply the brakes, and white–red–white to release them. I was on my way from office-door to guard's van. I saw the lamp in Guard Lowe's hand, and I heard and saw the brake-blocks being released. I only saw them released. The Stationmaster has a dual responsibility with the guard for a test of the brakes being made. It is part of my duty to see that the train is in a proper condition as regards brakes and couplings and everything before it leaves the station. I did not examine the train. I did not examine the couplings. That duty is apportioned to the outside staff. It is not my duty to do it personally. It is the guard's duty. I have to accept responsibility as a matter of fact. I delegate the duty to the porter or guard as regards a goods-train, but a passenger-train I attend to myself. I delegate the duty on my own responsibility. I have no rule or authority. I delegated my authority that night to Guard Lowe, and he would see that the train was fit to run that night in every respect. It is not part of my duty to see to the testing of the brakes. That is the guard's duty. I have to see that the train is fit to run. I only spoke to Guard Lowe as to the extra tail-lamp he had to exhibit. It was a bogie-van attached to that train. While I was standing talking to Lowe about the tail-lamp he was completing his brake-test, and threw his light on the wheels. I saw the brake-block released. I was

about 3 ft. from side of van. I did not see any signal given. I had been busy in the office writing, and only went out at last minute to see Lowe about the tail-lamp. With the aid of a lamp on a dark night it is quite possible to see the brake-blocks released from the wheel. There is a proper brake-test. The driver is signalled to apply the brakes and release them. Usually during the test Guard Lowe stood by his van while the brakes were tested. On one occasion the porter signalled to apply the brakes, and Guard Lowe interfered saying he would see to that himself. I saw Porter Tyer go along the train and turn his light upon each vehicle as he passed. I am not positive it was Tyer, but I think it was he. That was done before the brake-test was applied. While this inspection was made Guard Lowe was standing alongside the guard's van. The porter who made the inspection made no report to Guard Lowe. The fact that he made none signified the train was in good order. I did not see the porter go the whole length of the train. When I noticed him he was at the portion nearest the guard's van. I judge he inspected about fifteen vehicles while I saw him. When he reached the van the test of Westinghouse brake was made. During this time I was walking from my office to guard's van, and also standing at the van. Half a minute after the porter reached rear end of train the test of brakes was made. All I saw was a brake-block on the van was moved. It could not have moved without force from the engine. I am Stationmaster at Putaruru, but have to do with about nineteen other stations which entails about sixteen hours' work a day, and hard work too. I do not know if any one was inside the guard's van at the time I was speaking to Lowe. The Westinghouse brake can be operated from the guard's van. It was the Westinghouse brake-block I saw move. It was the brake-block on inside of rear bogie-wheels—on the front of one wheel and rear of another wheel. I do not think those brakes can be operated on by hand-brakes; it may be so, but I was quite unaware of it if it is so. It is news to me. It follows that what I saw might have been caused by the operation of unscrewing the hand-brake in guard's van. We had no tail-light, and instead we tied on a porter's lamp. It is a new service, and we had not yet obtained an extra tail-lamp. We could have got one from front van, but left it alone as she would want it on her return journey. Porter Tyer supplied the lamp. I was the first to receive official notice of the accident. The weight of train was approximately about 230 tons. I should have a record of everything that was put on that train—that is, as to the wagons that were put on at Putaruru. Porter Skeen should know in what order the wagons were marshalled. I think there were five trucks put on at Putaruru that night. All the wagons on the train were loaded. The custom is to arrange the wagons in the order in which they would be dropped at the various stations. Cooper's engine had come from Frankton that day. His engine was T 102. Putaruru is the home of that engine. She had left there that morning. She had worked that day between Putaruru and Frankton. She had only started the day before. She was new to us. Her load is not yet specified on our time-tables. I had seen that engine before about twenty years ago at Dunedin. I know nothing about her capabilities. We have a scale of loads for various engines, and the scale gives 100 tons for the T engine. Engine T 102 had been up the Mamaku the day before, taking a load by herself of 120 tons. I would describe the load that night for the two engines as a medium load—certainly not a heavy load. I would have taken the responsibility of putting another 20 tons on to the two engines. Guard Lowe was thoroughly conversant with the track over which he was running that night. He had been on the line about two years and a half. Cooper had to return that night from Mamaku to Putaruru in the ordinary course of events. After his arrival at Putaruru neither he nor the other officials were anxious to get away. They were ten minutes late, but they could not get away before their appointed time, 7 p.m. Even as it was, they were ten minutes late in getting away. More expedition than usual was required that night. Our yard was full of wagons. Shunting operations were congested, and we had a busy time. There was not necessarily a rush. We were exceptionally busy throughout the whole day. All our hands were full.

Court: The engines watered at Putaruru every night. Both engines watered on this night. To the best of my belief both engines watered that night. It was the duty of the engine-driver to see to their supply of water. I did not actually see them take water. Whether they take water at Ngatira, eight miles distant, depends on their load and the state of the rails. It is about five miles from Ngatira to where the engines were uncoupled, and from the uncoupling to where the train ran over the bank is about ten miles. So far as I know the Engine-drivers Cooper and Taylor are steady men; also Guard Lowe and the porters were steady reliable men. That night I saw the guard and the porter but not the locomotive men. They were in good health, and in every way fit to do their work. Guard Lowe was the only guard. Dwyer was only acting-guard. The latter had only been appointed to my station the day before. The guards carry sprags in their vans. The Traffic Inspectors and the Stationmaster at Rotorua have as part of their duty to see that the vans had sprags. I know the incline. Supposing the train standing there had not had Westinghouse brakes the hand-brakes would hold her, supposing she had come to a dead stop. Sprags would be an additional precaution. After the accident I was the first to get official intimation. I am not aware that any examination was made of the wreckage. I never saw the scene of the wreck. From what I saw of the wreckage brought to my station you could not judge of the original position of the wagons or brakes on the cocks. I gave evidence at the inquest on body of Lowe. It was read over to me and I signed every page. That produced is my evidence (pages 96 to 107, inclusive), and it is all true. I have not heard of anything likely to help in arriving at a conclusion as to cause of accident. I have disclosed everything I know. I am at a total loss to understand how the train got away. I have had twenty-two years' railway experience. I have no personal knowledge of the Westinghouse brake failing. I have not heard of any failure. If anything goes wrong the fault is reported through us to Locomotive Department. It would have been Guard Lowe's duty to report the circumstances of the accident to me. Both the driver and the guard would each have to report to their respective heads. The leading driver is in charge of the second engine. I have a copy of the Rules and Regulations, Appendix to Working Time-table, and

Instructions as to Westinghouse Brake. I am acquainted with them all. As soon as train starts the guard is in charge. While at my station I am in charge. Rule 202 (p. 82) does not, I think, cast on me the duty of seeing the brakes are in good working-order—it does not include a personal examination of the brakes. It is the guard's duty. I do not ask the guard if he has tested the brakes. I have done so since the accident in respect to goods-trains before I give the guard "Right away." I have not done so as to passenger-trains, because that train is not broken up. The guard and driver have a dual responsibility as to the brakes. The order of the engines is immaterial. When the train started Lowe, Tyer, and Dwyer were in the guard's van, but I am not aware if any one else was in the van. I have heard the Westinghouse brake tested many a time. The noise made depends on length of train. Before I saw brake-blocks move I do not remember hearing any noise. I could not say whether any one was in the van when brake-blocks moved. Kingdon may have been there, but I do not know. The passengers were in a carriage. There were only four passengers I think.

Prendergast: The passengers got aboard about five minutes to 7. I heard them speaking impatiently of the delay. I did not see any one get in the van except our own men. We put a dining-car on express for Auckland. There was no detachment of the engines after I saw brake-blocks released. The train left about a minute later.

Court: There is a breaking of the express train at Putaruru in putting the dining-car off and on. In respect to express and where a train is broken I witness the brake-test, but in respect of mixed trains I leave it to the guard entirely. The guard signals to the driver to apply the brakes and sees them applied, and then signals for their release. It is not usual to amalgamate trains at Putaruru. This was the first instance for some time. There would be a reason for the amalgamation. Mr. Waite, Traffic Manager, would know the reason. E. J. H. HARRIS.

Taken and sworn at Auckland, this 23rd day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Inquiry adjourned until 10 a.m. on Saturday, the 24th August, 1907.

SATURDAY, 24TH AUGUST, 1907.

On opening inquiry to-day Engine-driver Taylor and other witnesses expressed a desire for an adjournment to afford them an opportunity of employing counsel to represent them.

Inquiry accordingly adjourned until 10 a.m. on Monday, the 26th instant.

MONDAY, 26TH AUGUST, 1907.

On resumption of inquiry to-day Mr. F. E. Baume, K.C., requested permission to reappear with Mr. F. Earl to watch the proceedings on behalf of railway servants.

Permission accorded, and evidence proceeded with.

This deponent, THOMAS WILLIAM WAITE, being sworn, saith:—

I am District Traffic Manager for Auckland Section of New Zealand Railways. The train from Putaruru to Rotorua was delayed from 5.30 to 7 p.m. in order that it might couple on to the following train in order that goods might go through to Rotorua that night. I produce copy of a telegram of instruction sent to Stationmaster at Putaruru as to delaying train (Exhibit No. 10). There was no other reason for delaying the train than that I have given. The second train had goods for Rotorua, and would only go as far as Mamaku that night. I am not sure that she had goods for Rotorua, but if she had not there were more Rotorua goods at Putaruru than the one train could take through, and I wanted the two engines on that load to get the goods to Rotorua that night. There were more goods than the first engine could take up the hill, and I wanted to add the power of the second engine with a lighter load. I do not think any goods were left behind at Putaruru. There may have been empty wagons left. The only men who could say whether it was a full load are the men on the engines. As far as I know, the load of the two engines up the hill was about 240 tons. I knew the late Guard Lowe. He was a very efficient and capable officer. He was supplied with the Regulations and Appendix and Westinghouse Brake Regulations. He and other officers were examined from time to time as to their knowledge of the brakes and rules. I only receive a certificate as to their efficiency. Dwyer was a porter and acting-guard. On the night of accident Lowe was in charge of train and Dwyer was acting under him. Tyer is a porter, and simply assists on the train. He had no responsibility. Lowe would come on duty at noon on the 3rd August, and in ordinary course would have been in Rotorua about 9 p.m. Dwyer would come on duty at Putaruru that night, about 6.30. Dwyer was not on duty the previous day. Lowe was on duty from 6 a.m. to 1 p.m. on the 2nd August. About the 1st August I received a communication from Mr. Harris saying he was working fourteen or fifteen hours a day, and asking for a cadet, who was sent him as soon as possible. He had the assistance of a clerk. There was no necessity for Harris to be there more than ten hours a day in the ordinary course if he is an efficient officer.

Court: Whenever the traffic necessitates it we amalgamate trains. It is frequently done. I cannot say if those two engines worked together before. I do not know of anything and have not heard of anything which I have not disclosed that would assist in arriving at a conclusion as to

cause of accident. Next day I went to scene of accident, and my attention was not drawn to anything in particular. It is the duty of the guards to see that sprags are carried on the train.

T. W. WAITE.

Taken and sworn at Auckland, this 26th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, AUGUSTUS VAN ZANDT MACDONALD, being sworn, saith:—

I am Locomotive Engineer, Auckland Section of New Zealand Railways. I know the engine T 102, driven by Cooper on night of 3rd August. The engine arrived in Auckland on the 17th June, 1907. It was put together here under my supervision. It was handed over to Locomotive Foreman on the 1st July to put on the track. It was then in good running-order. It was capable of hauling various loads according to grades. It could haul 140 to 145 tons on a grade of 1 in 36 to 1 in 40 in the night-time on slippery rails. I consider that would be a fair load for that engine. I had not received any complaint as to the running of that engine up to time of accident. She was last in the workshops on the 26th July. She then required new firebars. Apart from that there had been no complaint. I know the engine driven by Taylor. She had been running many years on Auckland Section—ten or twelve years to my knowledge. Her maximum load was 100 tons on a grade of 1 in 36 to 1 in 40. So far as I know, she was in good running-order. I know the incline. Nine tons is a fair allowance to make for trucks containing light cattle. The weight of the load would not be over 226 tons. I took the tare of the trucks and added to it the weight of the freight, and the total weight was 226 tons—19 tons short of maximum load. Engine T 102 was used after the accident between Putaruru and Frankton. It was not brought in for repairs until several days after the accident. No report was made to me about the engine after the accident. I am the proper person to report to. The Locomotive Foreman would report to me. He would receive a report from the engine-driver. Since the 3rd August an accident happened to engine. That was at Frankton five or six days after accident. The valve-buckle broke. Leydon was in charge of her then, and he reported to Foreman who reported it to me. The engine is in now for repairs. I did not examine the defect myself. The Railway Shops Manager would examine it. It was reported to me as an old flaw. The Locomotive Foreman so reported to me. Had that flaw existed on night of accident it would not account for the accident. Had it existed then it would have gone worse. It was a recent defect. The Carriage and Wagon Inspector (Simpson) would make a minute examination of the wreck. I have not yet a detailed report from him as to the wreckage. It would be his duty to make a minute examination of the wreckage and brakes and cocks, &c., before the removal of the wreckage. The report would come to me in due time. I called upon him to prepare his report for this inquiry, and to report to me specially as to the condition of the brakes and cocks, &c. The Workshops Manager (Richardson) could also give evidence as to the state of wreckage when it arrived here. Three wagons came down on their own wheels. I examined those vehicles at Newmarket yard. A good many of the Westinghouse brakes (combined sets) were in good condition, and serviceable. I saw nothing which would give a clue as to what happened to the brakes. The engines, trucks, and vans on the train in question were each fitted with Westinghouse brakes in good condition. There is a constant system of inspection and supervision. There are train-examiners under the car, and a Wagon Inspector whose duty it is at several points to inspect the brakes. There are three or four at Auckland, and others at different stations. They test brakes before the trains leave at different stations. It takes constant care and attention of competent men. They are all competent men. I have been in the service ever since Westinghouse brake was introduced. Records would be kept of any failures of Westinghouse brakes. Sometimes we would get reports of a brake going on when it was not wanted to. I have an intimate acquaintance with the brake. Assuming the brakes were fully charged and the engine separated from the train, it would probably take an hour for the air to leak out. I have seen the experiment tried. A train moving along must be constantly pumping air into the brake to keep it charged. Supposing valves and cylinders, absolutely empty, the engine could pump them full in about a minute supposing it to be a long train. Once started the pump would do it automatically. It is the driver's duty to keep the air-brake charged, always ready for use, whether it is on an up or down grade. Supposing cock between engine-tender and train was closed the engine-driver would not know of the block unless he released. He would see the pressure in his own engine and would assume that was the pressure throughout the train. The guard would know from the dial in the van whether there was 10 lb. or 70 lb. pressure. If the pressure was below 70 lb. the brakes would be on. There is a certain amount of leakage, but the brakes would remain on for about an hour. The guard's dial would indicate to him the state of the air-brake. He can apply the air-brake from his van at once. You cannot recharge except from the engine.

Baume: Engine T 102 is not scheduled. I arrive at its power by the traction-power of the engine compared with others. The power of that engine is more than when it was new. It is a better engine now than when it was new. It was a Baldwin. They were a success. We got very good work out of them. The grade is one of the steepest on this section, and the conditions that night were bad. The breaking-down of the engine was caused by an old flaw. It is not possible that the irregular beat of the engine was attributable to that flaw. I do not deny that there may have been an irregular beat. Cooper and Taylor could not have been mistaken and imagined the irregular beat. I have been led away by imagination and have imagined I heard irregular beat. If I heard or imagined I heard my engine beating wrongly I should consider it necessary to at once investigate. If I were told that Cooper and Taylor thought it necessary to at once investigate, and did so, I should consider they were acting as prudent drivers. It might to them appear to be a danger requiring attention. I do not know the reason why the report on wreckage is not in. From day of accident to breakdown at Frankton the engine ran again. I do not know what her run was.

Court: "Going off her beat" means going off her regular beat. It might mean a coming breakdown of the motion-work on one side. Had there been no Westinghouse brake on that train it would have been wise to put at least two-thirds of the hand-brakes on; but, undoubtedly, if all the hand-brakes had been put on they would have held that train. It would be well to have also used the sprags as "scotches"—that is, placed behind the wheel. Supposing a train starts away as this one did, it was almost impossible for the guard to get along and put the hand-brakes on the loaded wagons. He could only put on the screw brakes. I say the Westinghouse brake is perfectly effective. I know of none better. The hand-brakes are supposed to be kept in good order and condition, always ready for use.

Baume: The working of the air-pump is no imposition of work on the driver to keep it going It is automatic.

Court: The engines would take water at Putaruru and replenish again at Ngatira, so as not to have to make a stop at Arahiwi, which is the next station beyond Ngatira—about seven miles, I think—and about two miles beyond the accident. I have not seen Cooper's report [produced (Exhibit No. 11)].

A. V. MACDONALD.

Taken and sworn at Auckland, this 26th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Copies of reports of G. E. Richardson (Exhibit No. 12), G. Bowles (Exhibit No. 13), E. M. Leydon (Exhibit No. 14), C. V. Kerr (Exhibit No. 15), J. L. Taylor, and H. Pee put in evidence.

This deponent, JOHN LAMBERT TAYLOR, being sworn, saith:—

I am an engine-driver residing at Rotorua. I hold a second-grade engine-driver's certificate. I have been on about eight years, and for about two years and a half of that time have acted as engine-driver. I was in charge of engine No. 8 on goods-train returning to Rotorua on the 3rd August. I had ceased work the previous day about 2.30 p.m. after I had done ordinary day's work. On the 3rd August I came on duty at 9.35 a.m. I arrived at Putaruru about 5.20 p.m. with a mixed train from Morrinsville. After my arrival at Putaruru we did some shunting, and after we finished we put our train together and were ordered ahead on a side track to allow and wait for a passing train. Leydon brought the train with engine T 102 from Frankton, and Cooper took charge at Putaruru. The train made up was shunted by engine T 102. There are at least three lines of rails at Putaruru. I think my train was standing on the line next the main line. There may have been two lines between my train and the platform. After shunting was done by second engine they whistled for us to come on. The van belonging to Cooper's train was behind his engine. While that engine was shunting I do not know where that van was standing. The passenger-carriage was behind our train, and I do not think it was interfered with in the shunting operations. After they whistled I ran my engine back and coupled on to Cooper's engine. I never left my engine from the time I arrived there until we left again. We did not water there. We had sufficient to take us to Ngatira. We never take water at Putaruru. I do not know if the other engine took water at Putaruru or not. We coupled on to the T engine. I do not know who coupled the T engine to the train. A porter or guard coupled us on to T engine. He would couple the side chains and see the hook was in its place, and he would have to couple the Westinghouse hose and put the cocks down—that is, he would have to open the pipe, and the person who coupled the front van would have to go through the same operation. I know we were coupled on to Cooper's engine because I went to Cooper and asked him to turn his headlight down, as it was glaring into our cab. He asked me to turn it down, and I had to get in between the couplings to turn the lamp down, and while I was there I looked at the cocks and couplings. I felt them to see that they were coupled properly, and put my hand on the cocks to see they were open. It was not an accidental view. Being there I deliberately felt them. I did so just to satisfy myself the couplings were proper. I had no doubt they were right, but being there I looked to see they were right. Had it not been for the light I would not have gone to the couplings. I have no responsibility as to the couplings. I did not examine any other couplings. Cooper's headlight threw such a glare that it was very awkward to see ahead. It blinded me. I went back to my engine. I am not positive whether I examined the couplings before or after the guard signalled for brakes, but I am positive the guard did signal for brakes—first red, then white, then red. That signal was given from rear end of train—over 100 yards I should say from where I was. Before I was signalled my pressure was between 70 lb. and 80 lb. We had coupled on and the pump was working, and she had filled herself up. I could not tell from the gauge whether that pressure applied to the full length of the train. I could not tell how far that pressure extended. If it applied to a few wagons only I would not have noticed it. If my own engine only was connected I would notice that, but I would not know that the pressure did not extend beyond the first van. When signalled I put on the brakes, and, as far as I know, they were perfect in every way. Then I got white–red–white—to release the brakes. I would judge from that that the guard was satisfied the brakes were acting all right. It is not the custom for the guard to walk up the train to see that the brakes are all clutching, although the Westinghouse Instructions say it should be done. It is done by the train-examiners at the stations. The guard assumes if the van-brake is going all right that the others are all right. The signal to put on and to release brakes is always given from the tail of the train. The pressure in the pipes would also be indicated on the gauge of the second engine. The guard's van and second engine should all register the same. I am quite positive the test was applied at Putaruru that evening. I have never started off without making the test—if the guard forgets, the driver remembers. It is very important the brakes should be carefully tested, especially on lines with heavy grades. We started off for Ngatira, about five miles distant, intending to stop there for water. There is no Stationmaster or person in charge there. The grade from Putaruru to Ngatira varies. It is practically all an up grade, and we

would not require to use the Westinghouse brake except to stop the train at Ngatira. That night we used it to stop, but very lightly indeed.

Prendergast: When we release the air, it is done by moving the driver's brake-handle. When I got signal to apply brakes I looked at gauge. I do not know whether I looked at gauge after releasing brake. So far as gauge is concerned, I could not say if brake was connected throughout the train. In pulling up at Ngatira the tender brake would be sufficient to pull up the train. I have always used the Westinghouse. Both engines took in water. I filled right up, and I suppose other engine did. That would take us with a full load to Rotorua. As far as I can remember it was five minutes to 8 when I left Ngatira. I spoke to Cooper at Putaruru. I said, "If you are short of steam or water on the bank, give me a signal and I will stop." Cooper had not, I think, worked that engine on that grade. He said to me, "I do not know the road very well. It is five years since I was on it." Not knowing, he might go on steaming over the top of an incline. I would stand while he filled his boiler up from the tender if necessary. I had command of the brakes. When we had the conversation was the time I went to him about the headlight. From Ngatira we started to go up the incline. I had to use the sand-gear, and the night being frosty the engine was slipping. I found the load extra heavy. It was so heavy that my fireman (Pee) said he did not think Cooper's engine was doing as much as it should have done. Our engine was working heavier than she did with a schedule load. It was just as much as we could get along with. I am acquainted with the rules as to ascending and descending inclines. The first time I have heard of the rule at page 6 of those rules was at the inquest at Rotorua when it was read out. I have not had the Appendix for two years. I do not remember the rule being in it. I do not remember ever seeing it at all. Assuming it was there, I either did not read it or I forgot it. I should say it was there. I have not had the Appendix for about two years. I lost mine. I applied for another the Christmas before last to the Running-shed Foreman. I got a reply stating they regretted not being able to supply it, as they had none on hand. I do not dispute that that regulation was in force at time of accident. That Appendix was issued before the Westinghouse brake was introduced, and I think that rule applied to trains where only hand-brakes were used. I have not been so instructed. I only *think* that is so. I remember seeing a notice similar to Exhibit No. 18. I do not think that notice modifies or alters in any way the instructions on page 6. After what has happened I would now apply Regulation 6. That night had I known of that regulation I would have applied it. I admit I have received no instructions from the Department that that regulation is to be ignored. I am well acquainted with the "General Instructions to Trainmen." The guards do not traverse the whole length of train to see that the brakes are applied to every vehicle when the brake-test is made. That is only done by train-examiners, and the guard does not do that if there is no train-examiner. The regulations as to running the pump is adhered to. The regulation as to keeping air-pump of leading engine, when there are two connected, constantly working is adhered to. Regulation on bottom of page 9 is also adhered to.

I heard the signal I had arranged with Cooper to give at about the 48-mile peg. I do not think we were going more than four to five miles an hour. The train was pulling heavily. That may have been due to some of Westinghouse brakes "creeping" on, but I had no reason to think so. The heaviness of the train may have been caused by the air escaping from the rear of the train, and the brakes going on in consequence. When I got Cooper's signal I shut off steam and applied the Westinghouse brake, making about a 15 lb. reduction; that was a good reduction —sufficient to hold the train without the engines coupled on. After we stopped Cooper jumped down with a torch. I jumped down too. Before the application of brakes there was a pressure on the gauge of 82 lb. or 83 lb. Before jumping down I did not give my fireman any instructions. Cooper remarked that he thought he had broken down. We both got out on right-hand side of our engines. When Cooper said he thought he had broken down we began to look round and try and find the cause to see if she had broken down. I examined Cooper's engine on both sides. Examined the right-hand side first. I crossed to the left side between Cooper's engine and mine. Then we came back the same way to the right, and Cooper decided he would go underneath his engine, and he did so towards the front of the cylinders. We said nothing to firemen except that I asked one for a hammer which he passed to me. Cooper was under his engine about eight minutes. I passed him the hammer when he was underneath. He tapped the different keys to see if they were right. He had the torch underneath. He came from underneath, and he said he could find nothing wrong. After he came from underneath he suggested that we should cut off and move slowly ahead to examine different parts in different positions. I agreed. I passed the remark that I would cut off. Before doing so I went along to my engine. I told Cooper that I would release the brakes, pump the train up, and then apply them afresh. I left Cooper on the track beside his engine. I heard him tell his fireman to put the lever forward and put some steam on. This was necessary to hold the train, as I was going to release the brakes. I went along to my engine and got into cab, and Cooper followed me. He stood on one of the steps. I put steam on to hold the train while I released the brakes. I then released the brakes. I put the handle in the release position. My dial showed about 15 lb. reduction before I released the brake. I released the brake, the pump acting automatically, and the same action recharged the pipes up to a little over 80 lb. I did this myself. The action of relieving recharged the brakes also. There is no governor attached to the pump on my engine. It is not necessary to shut steam off to keep the pressure down. I let her pump. After recharging brakes I put the brakes on again, making a reduction of between 30 lb. and 40 lb; 25 lb. is supposed to put the brakes full on. I put the extra pressure on as an extra precaution. 25 lb. would put the brakes on as hard as a reduction of 30 lb. or 40 lb. would. I personally operated the brake. During this time Cooper was standing on the step of my engine. When he gave instruction to his fireman Cooper was standing half-way along my engine. When the two engines were under steam, they did not move backwards or forwards. I left my engine steam off and brakes full on and I went to uncouple. Cooper was beside his engine.

and his fireman in the cab, and my fireman in his cab. I went and cut off between the front van and the tender (as shown by red cross on plan). I crossed over the couplings to other side before I uncoupled. I did so, as it put me in a handier position to operate. The other way seems left-handed to me. I shut both cocks that cut off communication with the engine as regards the brake. Then I uncoupled the hose. The brake-connection was then completely severed. I uncoupled the side chains. I do not know whether I did that first or afterwards. The hook was stretched tight. I called to my fireman to release the brakes and ease up. I called out "Release the brakes and ease up, Howe." I do not remember the exact words. He released the brakes and eased up, and I lifted the hook. I am sure I had uncoupled the brake before I asked him to ease up. If I were wrong in that, the fireman would have released the brakes on the whole train. I am certain the hook operation was the last. He eased up, and there was no bump that I remember. I took the hook off. If I were mistaken and the fireman released the brakes and eased up before I uncoupled, the accident would be accounted for. The guard would be able to apply the brake at rear of train if my operation was complete. When I gave fireman the direction to release brakes and ease up, he simply did it, and did not say anything. I was on left-hand side of train. My engines were free then. I gave no warning to the guard that I intended to uncouple. I took no steps before uncoupling to put on the hand-brakes or screw brakes. I did not think it necessary to warn the guard. We were only leaving for a very short time, and not going very far away. After uncoupling and before I went ahead I went along to put three hand-brakes on. I missed one truck because the brake was not on that side. I put two hand-brakes on left side and one on right side. I put the brakes on three different wagons. I thought the Westinghouse alone was sufficient, but I put three brakes on as an extra precaution. I was thinking what would be sufficient, and I thought three were sufficient. I pressed the brakes down with my hand and put the catch on. As I was leaving, before putting the truck-brakes on, I saw Cooper getting in at the door where I uncoupled. He knew I was going to uncouple and I should think he would hear the hose go. He went in at front door of van. When I came back I saw Cooper on the track on right side of his engine. I told him I had put down three hand-brakes, and he told me he had screwed the van-brake on. He said "We'll move ahead slowly." I told my fireman to move slowly ahead. Both Cooper and I remained on the track so that we could watch his engine. Cooper told his fireman the same. I know Rule 213, page 87. I complied with that rule. We drew away very slowly about 10 ft. We had the engine in the position we wanted, and I called out to my fireman to stop, and he did so. I was on the right-hand side. Cooper and I followed up watching her movements. I could not see anything wrong with the engine. I glanced back at the train, and it was to all appearance stationary. It was a starry night—very still. There was nothing to influence the train except its own weight. There was a light turned low in the front van. We decided to go a little further. One of us—I think, Cooper—suggested we should move a little further ahead and watch her movements. I instructed my fireman to shut off as soon as we got moving and leave the second engine to do the pushing, so that we might hear her beat. The engines moved, and Cooper and I intently watched her movements. We went 60 yards or 70 yards and found nothing wrong and stopped then. I think it was between six and eight minutes from the time we uncoupled until we finally stopped. Cooper looked round and drew my attention to the fact that the train was moving. I looked round. He jumped on to his engine and I jumped on to mine. I should think the leading van was then 200 yards from us. It must have been travelling some little time before we noticed it. When the guard found the train moving backwards he had no way of communicating with us except his hand-whistle. We had no signal from him. Cooper said, "The train 's away," or words to that effect. It was a moment of excitement. Cooper said, "We'll chase her," and we both jumped on our engines. The train was a good way down the straight. We were on a curve. We saw the train in the distance. When we actually started I suppose she was 250 yards away. Had it not been for the light on leading van we would not have known so soon. I did my best to catch her. I put steam on, and we were going forty miles an hour at times. I saw a light on Cooper's cowcatcher. We did not catch the train and could not catch her, and did our best to do so. An engine would run down a hill as free as a wagon. At Ngatira we were stopped by a platelayer who said he had heard a crash. We stopped, and I got on Cooper's engine and told him to take charge of the brake. We reached scene of wreck. Next day I looked at the brake-blocks with the Coroner's jury. I only examined them to see if they were on or not. A lot of the Westinghouse brakes were on. I thought it was not necessarily a proof that they were put on by the brake-appliances. They might have been pressed on in the general crash. I did not see the indicator in guard's van. I saw nothing to give any indication as to why the train ran away. I did not examine the wheels of wagons or guard's van. The wheels may or may not have shown signs of the brakes being down. With the pressure I applied to hand-brakes I do not think the wheels would skid—not loaded wagons. I should say it is quite possible for some one to interfere with the cocks between the time of testing the brakes at Putaruru and the stop at Ngatira. If a cock was turned off near the engine the brakes would not operate behind that. I know Dwyer stated the guard's gauge showed 30 and was down to zero three minutes afterwards. I have never known such a reduction in such a short space of time without the brake being operated on from the engine or van. If the gauge was down to zero it would indicate there was no air in the train. If the brakes were applied there would still be air in the cylinders, but if there was no air in the train the brakes would not be on. If such a reduction as from 30 lb. to zero within three minutes was made it would apply the brakes. I know in my experience a train has been held with the Westinghouse brake on that incline. I knew of a train standing there for ten minutes without any backward movement. I do not know of any case where the Westinghouse brake failed in New Zealand. Firing and driving, I have been acquainted with it six years, and always found it reliable. As far as I know, the Westinghouse brake was in good working-order on my train. We would have had to go two miles and a quarter further on before getting on a

level grade before uncoupling. It would have been very unwise to struggle on that distance. When I went to put on hand-brakes I looked at brake-blocks on first or second wagon. I saw that the Westinghouse was on or appeared to be on. I had a torch with me. I only looked casually. I wanted to see the train was secure. I had no doubt whatever as to the efficiency of the brakes. I did not look at train-pipe connections. Afterwards I discussed with others the cause of train getting away.

Court: Supposing there had been no Westinghouse brake on that train, I would have secured it with hand-brakes. I have not had experience with hand-brakes on that grade, but I would have put down, I suppose, over half of them. Had I given three short whistles the guard would have known I wanted brakes on. Cooper gave those whistles when we were chasing the train. I did not consider it necessary to warn the guard before we uncoupled. I made a statement to Constable Spellman at Rotorua. There was trouble about it. I did not tell him Dwyer did the uncoupling. He read that over to me and I corrected it at once. I never told him Dwyer, the acting-guard, did the uncoupling. When he put that down I said, "No, that's wrong," and he at once struck it out. I gave evidence before the Coroner (papers 4–15, inclusive, and 108–22, inclusive). What I said to Coroner is, to best of my belief, true, and I do not wish to alter it. I said there that *I* released the Westinghouse brake.

Baume: I remember a train *with the engine* being ten minutes on the incline without moving. It takes a fraction of a second to close the cocks. There has been trouble at Ngatira before. A Maori greased the rail there and was fined for doing so. When I examined wreckage I saw Westinghouse brakes on. They might have been put on with hand-brake in the van. [Plan put in showing separate action of hand-brake and Westinghouse brake on the brake-blocks (Exhibit No. 19).] I had no reason to believe Westinghouse brake insufficient to hold the train, but I applied hand-brakes as additional precaution. After I uncoupled the train remained stationary. Had the Westinghouse been inoperative the train would have gone right away as there were no hand-brakes on then. They were put on after uncoupling. The Westinghouse alone held the train between the time I uncoupled and the time I applied the hand-brakes. The hand-brakes I put on would not alone have held the train. They may have retarded the train a little. I am quite certain they were put on after I uncoupled. I applied *twice* for the Appendix. I was of opinion it was my duty to communicate with the guard after I found out something was wrong with the engine. If the guard had put on his brake it would not have held the train. I think half the truck-brakes without the van-brakes would have held the train. The whole of the hand-brakes would have held her, of course. I have not had experience enough to say how few or how many would hold her. There is no Stationmaster or other person at Ngatira to see if the train is interfered with, and the cocks are all exposed. A long train gives practically more work to the engine than a short train of similar weight—the friction is greater. I am satisfied, so far as I am concerned, that I put on the brakes and took them off again at Putaruru. At Ngatira I believed the pressure was still on. At 48-mile peg I had no reason to doubt that the Westinghouse brake was properly on that train. When I left the train on the incline uncoupled I had no reason to doubt that she was perfectly safe. I cannot suggest any action on my part that could have prevented the accident. I, on my part, so far as I know, have not contributed anything to the accident.

Court: I do not know whether we left anything behind at Putaruru that was to be taken on to Rotorua. I have, to the best of my belief, fully disclosed everything within my own knowledge relating to this accident. I have not since the accident heard of anything which would assist the Court in arriving at a conclusion as to the cause of the accident. I had no reason to put on the hand-brakes before I uncoupled. Supposing the reservoir and pipes are all empty, my pump would complete recharge in between one and two minutes.

J. L. TAYLOR.

Taken and sworn at Auckland, this 26th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Inquiry adjourned until Tuesday, the 27th instant, at 10 a.m.

TUESDAY, 27TH AUGUST, 1907.

On resuming inquiry His Honour stated he had received a letter marked "Private and confidential" from a Mr. William Bannerman, of One-tree Hill; that he had summoned Mr. Bannerman to attend as a witness, and that the letter was open to be read by those interested (Exhibit No. 20).

A telegram from the Stationmaster, Putaruru, stating that no goods for the south were left behind by the train which left on the 3rd August was produced (Exhibit No. 21).

This deponent, JOHN LAMBERT TAYLOR, being recalled, saith:—

Court: Cooper while chasing the train gave the three-whistle signal on three occasions. While chasing, the two engines were coupled—that was no disadvantage. I should judge we were going forty miles an hour when we gave the chase up. The runaway train gained on us, and we could not overtake it. I have no doubt whatever the pump was working the whole time we were going up the incline. There was nothing to be gained by not keeping the pump working. If we had uncoupled the two engines it would have caused delay in starting after the train.

J. L. TAYLOR.

Taken and sworn at Auckland, this 27th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, CLIFFORD JAMES DICK, being sworn, saith:—

I am a train-examiner, stationed at Morrinsville. I came to Auckland last Thursday. I have read part of the evidence given at this inquiry—the *Herald* report. I have read nothing else concerning inquiry, and have not been told anything. My duty is to examine trains and see that they are in order. Have been seven years in service, and four years of that at Morrinsville as train-examiner. Before that I was assistant train-examiner. On arrival of train I take a hammer and go round all the wheels, boxes, and pretty well everything in connection with the train. I tap the wheels to see that they are sound. I put my hand on the boxes to see if there is any heat. I look at the couplings and see that there are no leaks in the Westinghouse brakes. At night I carry a good lamp. I examine every train with the exception of the late train at night—the goods-train from Paeroa to Frankton. It passes through Morrinsville about 10 p.m. I have no orders to examine that train. I remember a train, in charge of Taylor as driver, passing through Morrinsville on the 3rd August, about 3 p.m. I made a thorough examination of that train. I found everything was in thorough order. The couplings and vehicles and Westinghouse brake were in proper order, and the cocks of the train-pipe were all open.

Baume: Some trains stop seven minutes, others stop two hours and over. The express stops seven minutes. That is the shortest stop. I could not say the length of Taylor's train when it left Morrinsville. I examined every cock on that train. I do not take the couplings in my hand. I have not time to break couplings and examine them. You would not need to open them to know if they were leaking. You could hear if they were leaking. I can see the position of the cocks, and I would not detect a leakage if it was very slight. I do not examine the cylinders and valves. I do not go under the train. I examine what I can see of the train-pipe. Nineteen-twentieths of train-pipe is under train carriage and I do not see it. As a rule, if there is a leak you hear it. But I would not detect a slight leak from the valves. The length of my examination depends on length of train. A train of ten carriages would take me five minutes to examine. I have a bit of a look underneath. I consider my examination is thorough. It would take an hour to make a complete investigation of all the parts. I see the Westinghouse brake tested before the train leaves Morrinsville. I go to the van and see what pressure is shown. I then go outside and give a signal to the engine-driver to apply his brake. I look and see it go on, and then I give a signal to release. When the test is applied it is when the train is made up ready to leave. If the brakes go on at the van I assume it is right all through the train. Taylor's train arrived that day at 12.20 and leaves at 2.50—that is, the train that Taylor took away. Taylor arrived by the express and took this train on.

Court: The train is made up ready to start. Before the test is made the cocks are open. I am careful to see that the cocks are open. Then I signal to put on the brakes, and I see the brakes go on. If I have any doubt as to the pressure of the brakes on the wheels I test them with a hammer. I could ascertain the pressure from the guard's-van gauge, but I do not do that. I hear the brakes go on—smack up against the wheel. Occasionally I discover leaks. You might get one, two, or three in a week. If I can fix up the leaks without delaying the train I do not report the leak. I make no record of the leaks I discover unless I use new material. I generally discover the leaks between the couplings. Very often a piece is blown off the rubber ring inside—a piece of grit might get in. I take the hose off and put an entirely new one in. I have also discovered leaks where the hose is attached to the tube—where the nut is. The nut may have worked loose, and I put packing in and screw it up again. I have found the cocks leaking. I found two in three years. It might be worn or have had a knock. The cocks do not move with the vibration of the train. There is a nick which prevents the cock dropping down. I have never known of a cock being out of place owing to the vibration of the train. I have never known the cocks to have been tampered with. I have regulations as to my duties. I have a rule-book. I have read in it what concerns me. I cannot point out the rules affecting me. I have the "General Instructions to Trainmen." I have to satisfy the Car and Wagon Inspector that I am fit to do the work of train-examiner. He watches me do the work. I do not get a certificate as to my efficiency.

Baume: I have not been called upon to make a special study of the theory of the Westinghouse brake. It is possible for a wagon to be cut out, in which case it would be dead while the rest of the train was all right. That happens now and again. It shows something is wrong as to valves or something, but it does not show neglect on part of train-examiner. On night of the 3rd August no vehicles were "cut out." It is my duty to see that the train is properly equipped with sprags and other necessaries. I cannot say what is a proper number of sprags. I did not look if this train had them. They always carry them.

C. J. DICK.

Taken and sworn at Auckland, this 27th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, THOMAS MORRIS COOPER, being sworn, saith:—

I am a second-grade engine-driver, employed by the New Zealand Railway Department. I have not read the evidence in newspapers, nor has the evidence been communicated to me. I heard the evidence at the inquest. I have been between ten and eleven years in the service. I passed my examination as driver in 1903. I have been driving for four years now and again—off and on. I am acting-driver. During last twelve months I have been driving frequently. I am stationed at Putaruru. I do not know the track very well between Putaruru and Rotorua. On evening of the 3rd August I was in charge of engine T 102 from Putaruru to Mamaku. On the 2nd August I knocked off about 11 p.m. so far as I can remember. On the 3rd August I came on duty at 6.40 p.m. at Putaruru. I took over the engine from Leydon. The train was not made up. I did the shunting. The train had just arrived. While I was shunting the guard's van of Leydon's train was at the rear of the train. I was shunting from 6.45 to about 7.5. Before

finishing shunting I watered, and then picked up the van. While I was shunting Taylor's engine was away down the main line right ahead of us. While we were shunting we stopped and took water. I do not think any one decided whose engine should go in front. I am not sure but I think I suggested to Taylor that he should go in front, as he knew the road better than I did. I had the stronger engine. I did not see Taylor while we were shunting. He was on his engine away down the line. I do not know who coupled the van to the train. I did not do it. I do not know who coupled between rear of my van and the train. I cannot say who coupled the engine. Porter Tyer or Guard Dwyer may be able to say. Guard Lowe was shunting. I did not see him near the engine when we picked up the van. I do not think he coupled that nor the coupling of the two engines, or the coupling on to the train. I gave two whistles and Taylor's engine came up and I think one of the shunters coupled the two engines, but I cannot say. I had a conversation with Taylor before we left the station. I think it was after the engines were coupled. The conversation was about my headlight, and also about if we had occasion to stop on the bank I was to give him a pop of the whistle. I could not say exactly where I was when we had the conversation. I do not recollect if I was on or off my engine then. I think Taylor came alongside my engine. Taylor turned my headlight down. When I first came on duty before Leydon came in with his train I had a conversation with Taylor about his engine leading. Taylor was then on his engine in the yard. The leading engine had continuous control of the brakes. I did not anticipate trouble on the grade. But often with a heavy load on a steep grade you might want water, and we arranged the signal as a precaution. I had no anxiety about the load. I had run a very few trips over that grade during the last five years. I ran the last one about Christmas. After the engines were coupled I suppose the train started in about two or three minutes. The brakes were tested before we left Putaruru. I saw the brake-test given. I saw the signal red–white–red by the guard from the van. I heard Taylor applying the brakes. I heard my engine-brakes go on. I saw the release signal, white–red–white, from the same place. The guard did not, to my knowledge, examine the brake-blocks all along the line, either on the applying of the brakes nor on their release. I could not tell, when the brakes were applied and released, whether the whole train was affected. I was keeping my pump going the whole time, but my pump was only affecting my main reservoirs. My engine was cut out. I could tell from my indicator the pressure that Taylor was putting on. My indicator was connected with the train-pipe and also with my main reservoir, and showed me the pressure of both. I noticed when the brakes signal was given that the indicator showed 80 lb. I saw the release also. We could probably tell if the pressure did not apply beyond our engines, but beyond that and a few wagons we could not possibly tell. Beyond a few wagons the train might be dead so far as we knew. I would rely entirely on the train-examiner or the guard to see that the train was alive up to my engine. Guard Dwyer and Porter Tyer and the porter at Putaruru all took a hand in the shunting. The shunter as he couples up is supposed to open up the cock also. Four persons, including Guard Lowe, may each of them have had something to do with that train that night. When the train was completely put together it was the duty of the guard to go round and see that everything was complete. There was no Train Inspector there, so that Guard Lowe would perform the duty. I cannot say if Guard Lowe inspected every cock and coupling. I have a governor on my pump. I could not say what reduction was made when Taylor applied the brakes at Putaruru. I had no particular reason for noticing the pressure in the train-pipe. The light is burning on the gauge and you cannot help seeing it. The pressure would be shown on four places on the train. I remember the 80 lb. pressure because I noticed that his pressure was greater than my engine carried. We would not have to use the Westinghouse brake between Putaruru and Mamaku, and it would only take a minute or two to charge the train. Our hand-brakes would not hold the train without whistling for brakes. We could have held her with the hand-brakes and the steam of the engine. I saw the guard signal "Release brakes," and the next signal a steady green light was "Right away." There was necessity for me to watch the signals. I take my orders from the guard the same as Taylor would. I would wait until Taylor moved his engine forward before moving mine. The guard was at his van. I could see the lights of the van close by him. He gave the signals from the station side of train. I think we were standing on the second line. I think there was one line between us and platform. We were certainly not on the main line. I had not been long watching the guard before the signals were given. I could see he was close alongside his van. I do not recollect seeing any one else or a light between the guard and myself. We were in no particular hurry to get away that night. We were very busy, and were ten minutes late in starting. After leaving Putaruru we first stopped at Ngatira. The Westinghouse brake was applied twice at Ngatira. I heard it go on my engine. We first stopped at Ngatira for water and the brake was applied there. I heard my exhaust on my brake-van. I could not judge from what I heard whether the brake was acting properly—not at Ngatira, because it required such slight break-power to stop. I did not notice the reduction. If the brake had been operating on the two engines only it was sufficient to stop the train. We both filled up with water at Ngatira. The water in my engine would have taken me from Ngatira to Mamaku and back to Putaruru. It was about 7.55 when we left Ngatira. I looked at the watch there. We were going very slowly up the hill. The line was greasy that night and we applied sand. After we had gone about three miles up the hill from Ngatira my engine went off her beat. I gave a pop of the whistle to Taylor to stop, and he did no. I got down on to the track. Taylor came along to me, and said "What 's wrong?" or words to that effect. I replied that I did not know. I asked him if he heard her going off the beat. At this time the train was being held by the Westinghouse brake. I heard it being put on. It was a distinct sound. I saw the reduction on my gauge. It was between 15 lb. and 20 lb.—a little over 15 lb. I could not say how far along that brake affected the train. My fireman secured the tender-brake on. It is the usual thing for the tender hand-brake to be always applied. I gave the fireman no instructions before I got out. I asked Taylor if he had

heard the engine going off the beat and he said he had. We examined the outside of the engines both sides. We got over the couplings. The engine was motionless then. We had torches. We could find nothing wrong outside, and I decided to crawl underneath and examine. I crawled underneath with my torch and could find nothing wrong. While underneath I asked Taylor to pass down the hand-hammer, and he did so, and I tested with it, but could find nothing wrong. I came out from underneath and told Taylor we had better cut off and move her slowly ahead. We both walked along to Taylor's engine. Before doing so I told my fireman to put the lever in the fore gear and give her a little steam to hold the train, because we were going to recharge. Taylor and I had spoken about this. Taylor got on to his engine and I stood on his step. Taylor, I think, first released his brake—the Westinghouse. I could not say whether his tender-brake was on or not. He recharged the train with air. He then made a reduction of about 30 lb. or a little over. He shut off his steam, got down off his engine, and walked back to my engine. I told my fireman to shut off steam—my tender-brake was still on. At this time I stood alongside my own engine. Taylor went to the couplings between my engine and the van; that would be five or six yards from me. I heard him sing out to his fireman to "Ease up." I then walked along to where Taylor was. The fireman had eased up, and Taylor had just lifted the hook and then got into the first van-door next my engine and put on the hand-brake as an extra precaution, as we were leaving the train, and Taylor went back and dropped some wagon-brakes. I did not see him do this, but he told me when he came back that he had dropped three. The engines were then disconnected from the train. Before that neither of us gave the guard any signal as to what was being done, and they would be in ignorance of what was being done by us. I have never been in the same circumstances before. I was supplied with the Appendix, but lost it a year or eighteen months ago. I did not apply for another copy. My books had been examined twice, and I was twice told that they could not supply another copy. I considered Taylor and I were jointly responsible at the head of the train. After we cut off, the guard could not communicate with us by whistle or any other way except lights. I cannot say that I know any rules in the Appendix. It is so long since I had the book that I have forgotten them. I never knew the Appendix rules very well. I knew the rules and regulations. Rule on page 6 of Appendix was not in my mind that night, and I did not recognise that that was my duty under those circumstances. I do not dispute that regulation is still in force, but I think it was meant for before the Westinghouse brake was introduced more so than for the present time. If I had remembered the existence of that rule that night I would have complied with it—that is, I would have given three short whistles before I uncoupled—to warn the guard and give him an opportunity of protecting his train at his end. I see now that that is very important on a grade like that. I did not see what Taylor did when he uncoupled. He must have closed the cocks or I would have heard the air coming out. I heard the usual report made by the hose when uncoupled. We each called out to our firemen to move slowly ahead. Between the uncoupling and the time the engines moved ahead would be three minutes fully. During that time I noticed the train and it was perfectly motionless. I watched it to see that it was secure, and I saw no movement whatever. Then I turned my attention to my engine. They went ahead four or five yards. I was walking with Taylor on right-hand side of my engine, and we were watching it as it moved along. I gave a glance at my eccentrics, and I glanced back at the train casually. I had no anxiety about the safety of the train. The train was still standing. Perhaps five minutes had elapsed since the uncoupling. We went ahead then for about 70 yards slowly, Taylor and I walking alongside. Taylor had told his fireman to shut off while my engine was going under steam. We stopped when about 70 yards away and could find nothing wrong, and were going to return to the train. I looked round and found the train was moving away. I could see that by the van-light, and there were lights in the carriages. I should judge the train was then 150 to 200 yards away. It must have been going at a good speed. I was the first to see this. I sang out to Taylor "The train's started," or something like that. I was alongside Taylor then. We both got into our engines and started after the train without any consultation. The two engines were coupled up but that did not hamper us. We steamed down the grade taking our brakes off. We got pace on quickly intending to catch up and hook on. I crawled out to the cowcatcher on my tender and was prepared with the hook in case we caught up. At that time Taylor was regulating the speed. He must have seen me with a torch going to the cowcatcher. I saw the train ahead. It was gaining on us and got further away. We chased it but I do not know for what distance. The train disappeared. As far as I could judge we must have chased it for about two miles. I came back from the cowcatcher to my cab. I suppose Taylor had shut off steam and gave up. We did not consult together. We never spoke together until we got to Ngatira, and we were there stopped by a platelayer who told us he had heard a crash. We did not fear anything as to ourselves until we got to Ngatira. After that when we were told of the crash we went along carefully and came up with the wreckage. I should say it would be 8.40 or 8.45 when we uncoupled. I did not examine wreckage that night. I had a casual look on Monday, and saw nothing of any value as an indication as to cause of accident. I gave evidence before the Coroner (pages 45 to 75, inclusive). It was correct to the best of my belief.

Prendergast: I did not discover the cause of my engine going off its beat. I reported the matter to the Running-shed Foreman (Exhibit No. 12). I have no idea now on which side of the engine the trouble was. I have an idea what the cause of the trouble was, because the engine has broken down since. I have seen the engine since she broke down. The cause was the valve-yoke breaking. That produced is the identical yoke so far as I know. It is not a fact that if that were broken the engine would necessarily be unworkable. It could not work if the yoke were in its present state. The engine would not necessarily break down completely and suddenly if that were the cause of going off its beat. I worked the engine on the Monday following the accident at very light work, not its usual work. She worked satisfactorily—nothing whatever appeared to be

wrong with her. Engineer Leydon told me she was off her beat when she went from Putaruru to Frankton with a heavy load. That was the heaviest work she had done after the accident. From the 5th to the 8th she was doing very little work. I do not suggest she was purposely kept idle. I suppose there was no work for her to do. I did not consider the trouble I had with the engine on the 3rd was at all serious. I did not report there was anything wrong with the engine. I only reported she went off her beat. If I had considered there was anything seriously wrong with her I would have made a specific report. I had only worked her one night before the accident. I have seen a brake-test made at a terminus. At a terminus there is usually a train-examiner, and either the guard or examiner traverses the length of the train at a terminus. The incident I related to Coroner (page 19) happened at Avondale. I was not present. Engineman Kearns, at Frankton, related it to me since the accident. As far as I know the Westinghouse apparatus was in good working-order on my train. I have never known of any case where the Westinghouse brake failed to act. I consider the Westinghouse brake if applied with a reduction of 30 lb. should have held the train, assuming the reservoirs were charged. Supposing the air in guard's van had escaped, and the van as to air-supply had been cut off from the preceding vehicle, the gauge would be at zero. If the indicator showed a reduction from 30 lb. to zero in three or four minutes that would apply the brake or brakes hard. It would be effective for the length of connection along the train. The train was pulling very heavily between Ngatira and 48-mile peg. It may have been due to the creeping-on of the brakes, due to leakage of air. When I went into the van the engines had been detached from the van. I could not say if there was a light in the van. I had my torch with me. The brake is close to the indicator. I did not look at the indicator. When I screwed on the hand-brake I did not put it on extra hard. I put it on sufficient to hold. I put it on fairly tight, but could have put it on much harder. I did not do so because, having the Westinghouse brake on, I did not think it necessary. I had full faith in the Westinghouse. I put it on as a sort of double check. I could not say at the time what thoughts passed through my mind. There is always a certain amount of resistance in putting on the brakes. There is no difference as to resistance whether train stationary or in motion. That brake was in good working-order so far as I knew. It seemed to turn on easily, and there was no more than the ordinary resistance. It gets harder towards the last. When starting the screw brake it ran round easily until the blocks touched the wheel. The blocks were on the wheels by Westinghouse brake, but I may have made them tighter with the hand-brake. Both hand-brake and Westinghouse brake acted on the same block. In putting on the hand-brake I assumed the Westinghouse was hard on. I knew it was on. I felt it was on. When Taylor and I went along the side of the engine we went on right-hand side. I could not judge how long I had an Appendix in my possession—three or four years perhaps. I have read it through. I was attracted by the portions that affected myself. If I had had a copy it may have made a difference to my conduct on the incline. Apart altogether from the introduction of the Westinghouse brake, I do not consider rule on page 67 in force. I never got notice of the repeal of that rule. If I ever read it I had forgotten it. I had no belief about the rule that night one way or the other. Since the accident I have formed the opinion that the rule is obsolete since the introduction of Westinghouse brakes. I am sure there was no failur. of Westinghouse brakes that night. I do not mean to say that the Westinghouse was acting the full length of the train. I do not know it.

Court: Taylor, Kerr, and myself made reports. We did not confer together before doing so. We had no opportunity of conferring. I had only spoken to Kerr once about the accident. That was on the Monday. I have never seen his report. We did not compare notes. I did not discuss it with Pee. We had no discussion or conference about the matter before the inquest. Mr. Bowles is a competent man as far as I know. I do not know what his opinion is regarding the accident. Supposing there was no Westinghouse brake I do not think the hand-brakes we put on would have held the train. I see now it would have been much wiser to put on all the brakes. We were in a hurry to get along the line. I put my faith in the Westinghouse, and, to tell the truth, I do not know why we put the hand-brakes on. I think something was said by one of us and I went into van and put on screw brake.

Baume: After the accident we all spoke together about it. I had nothing to do with the other men's reports. It is not always the common practice to put on the hand-brakes. We did it as an extra precaution. I could not say how many sprags are taken on a train. I have seen only one or two. Mr. Macdonald, at Rotorua, said he regarded that rule as a dead-letter since the Westinghouse came in. I am certain my engine beat irregularly. We stopped in consequence of that only. There was no imagination about the irregular beat. I think the fault in the yoke might possibly account for the engine being off the beat. There was a very heavy load on that night. I have spoken to Mr. Harris about the load for the T engine. I had told Mr. Harris that the T engine's load on this grade was about 120 tons. I did not speak to him about this night's load. If I had communicated with the guard and told him we were going to stop I know of nothing he could have done to avoid the accident. He might have trusted the Westinghouse the same as we did. I could not say exactly why we put on hand-brakes. If there had been no Westinghouse the guard would have put on the hand-brakes on every vehicle. If the hand-brakes are to be put on every time there is no use in the Westinghouse. I agree that every available precaution should be taken. I had no reason to believe the Westinghouse would not hold the train on the incline. It was reasonable to rely upon it. During the time I was on that train I do not know of any carelessness or negligence on the part of any one. I do not think now that any expert will recommend additional precautions to supplement the Westinghouse. I think the Westinghouse will still be relied on. I know Taylor's pump was kept working. It does not entail more work; on the other hand, it gives him more trouble not looking after his pump as the brakes are liable to drag on the wheels. Lowe could not possibly have examined his couplings, &c., after the brake-test as there was not time. If he did it at all he must have done it before the test. During the

last five years I have had practically no experience of that incline. Knowledge of the road is important on a dark night. Trains have stopped on the bank either for want of water or steam. The Westinghouse brake then holds the lot. If it was not holding you could put on steam and hold the train. If I had not implicit confidence in the Westinghouse brake I would not have gone under the engine at the risk of my life. I went on the cowcatcher at the risk of my life.

Court: When I speak of Westinghouse brake I have in my mind the brake extending the whole length of the train. When the engine is detached the brake remains available for the rest of the train when it is already charged. It takes some considerable time to leak away. I say Rule 231 is in force. I do not suggest that rule is to be ignored because of the Westinghouse brake. I would not ignore that rule or rule on page 6 now. I am supplied with the General Instructions for Use of Westinghouse Automatic Air-brake. I am well acquainted with those instructions. Speaking generally they are complied with. I think all other brakes are to be ignored when the Westinghouse is applied. The hand-brakes are never used when approaching stations. Except for shunting purposes they are never used. Each vehicle is not examined at all stations before the train proceeds on its journey. Each vehicle is not examined at Putaruru. I cannot say that the brake-test rules have been observed. If those rules were observed the train would never reach its destination. THOMAS MAURICE COOPER.

Taken and sworn at Auckland, this 27th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, HAROLD PEE, being sworn, saith:—

I am a fireman, employed on New Zealand railways. I have read the newspaper reports of the evidence given at the inquiry. I have not discussed it with anybody. I was present at the inquest at Rotorua. I have been five years in the railway service. I have been a fireman two years. Before that I was a cleaner. On the 3rd August I was employed as fireman on Taylor's engine. I joined at Frankton. On arrival at Putaruru my engine was engaged in shunting. After the engine was finished shunting and the train marshalled, the train was put on a siding. I could not say the time we finished shunting. I took no notice of the time. After the train was put on the siding the engine stood in front of it, but I cannot say whether it was attached or not. I remember Leydon coming in with a train. He was shunting—at least, his engine, T 102, was shunting, but who was in charge I do not know. While that engine was shunting we had pulled out—the engine alone. After some time our engine was run back and coupled on to the other engine. I do not think I heard a conversation between Cooper and Taylor as to which engine was to lead. I heard no conversation of any kind between them as to the engine. I saw them talking to one another before the train started, but I do not know what they were saying. They were standing down by their side. I was on my side of the engine. I think this was after we were coupled together. We were coupled a few minutes only before we started. When Westinghouse brake is applied you can hear the air escaping. You hear a row in the engine when the brake is applied—not a thud outside the engine. I was standing on my side when the driver tested the brake. I remember the test being applied. I believe the brakes were tested on the 2nd August, but I do not recollect it. I have a distinct recollection of hearing the brakes applied on the 3rd August. Sometimes the signal is applied on my side, and I tell the driver. I look out for signals from the guard when I expect one. I do not look out for signals at Putaruru when going to Rotorua. I was not on the lookout for signals that night from the guard because it was not on my side. I heard the brakes applied that night, and I heard them come off. It is an operation gone through at a good many stations. After shunting at Putaruru Taylor did not leave the engine until the time to start. I do not remember if we took water at Putaruru. We do not often do so there. The guard and porters generally make up the train. It was dark, and I could not say who I was working with. I did not do any coupling or uncoupling. I do not know who made up the train. I know the men at Putaruru, but who made up the train that night I do not know. I only saw the lights the men were carrying, but could not see who was carrying the light. Lowe, the guard, was one, Porter Tyer was another, and the porter stationed at Putaruru—I only know him as "Frank." I do not know of any one else assisting As far as I know these three made up the train. I have not since heard who made the train up. After leaving Frankton we took water at Matamata, Tirau, and Ngatira. Cooper's engine took water at Ngatira. I could not say if Cooper's engine took water at Putaruru. They could have done so without my knowing. I cannot remember if we took water at Putaruru. It is not usual. I remember stopping on the incline. Cooper gave a short whistle. The Westinghouse brake and my hand-brake on tender were both applied. The hand-brake would not have been sufficient to stop the train. We were travelling very slowly. We would have pulled up with hand-brake, but we could not have held the train with it. It is only meant to hold the tender. Cooper did not come up to our engine after we pulled up. Taylor went back to Cooper to see what was the matter. I cannot remember if Taylor gave me any directions before he went to Cooper. He took a torch with him. He lighted it. I saw him talking to Cooper. They were standing alongside of Cooper's engine. I could not say how long they stood there. I did not take notice. Next I saw was Cooper underneath his engine. I do not know how long he remained under his engine—whether it was one minute or ten. I have no idea how long he was under his engine. I do not remember now what I said before the Coroner. I forget if I gave the Coroner an idea how long it was. I cannot give an estimate or guess. Taylor was a long time away, and I got off my engine and went back to see what they were doing, and I then saw Cooper under his engine. I did not see him go under. If I said to the Coroner that I did see him go under I must have seen him go under. I forget now what I said. I can remember pretty near all I saw. I now remember that I saw Cooper go under his engine. I recollect it now and not because I have been told what I said before the Coroner. I saw him go under the engine while I was looking out of my side window. I saw him crawl under the engine

on the right-hand side. Taylor was standing close by. Cooper had a torch while under the engine and Taylor had another torch. I may have spoken to Taylor when I got off the engine but I do not remember. Taylor did not tell me to go back and get into the engine. I have a good idea what happened but I may have forgotten something. Taylor came back and got into the cab, and gave the engine steam himself and took the brakes off. That was after Cooper had been under the engine. Taylor pumped the train up then—he recharged. Then he made application of the brakes. He made reduction of between 35 lb. or 40 lb. I remember distinctly seeing that on the dial. Before reduction made, the pressure was about 80. I did not look before the reduction. But I could see afterwards where it was. One hand was on 80 and the other was between 30 and 40. I do not know which hand was on 80. I think the colour is red. I never took much notice what the colours were. One hand was on 80 and the other between 40 and 50. I am certain one hand was at 80 and the other was between 30 and 40, not between 40 and 50. I cannot say what the difference was between the red and black hands before making the reduction. After making the reduction Taylor left the engine. Cooper was standing on the step of our engine while Taylor made the reduction. Taylor got out and went back with Cooper. They went to uncouple. I remained in the engine. I understood they were going back to cut off—to uncouple. I did not receive any directions from Taylor before he left. He asked me afterwards to take the brakes off and ease up. He was then down the track a bit. He was standing alongside the other engine when he called out these directions. He was the length of the engine away—about 40 ft. He said, "Take the brakes off and ease up." I moved the handle. I did not make any reduction. I moved the handle back. I did not look at the gauge. I eased back. I never touch the handles unless instructed by the driver. I have applied the brakes before when the driver has asked me to. They sometimes ask me to take them off. I eased back a little and stood there awhile. Then I got the order "Go ahead a little" or "Move ahead a little." Then he told me to stop when I had moved ahead two or three yards. Then he told me to go slowly ahead. I did so for about sixty or eighty yards, under steam a little of the way, and then shut off. We still went ahead because the other engine was shoving mine. Then we stopped and Taylor came back. He jumped on again and gave her steam and reversed the engine, and went downhill. He never said anything, and I did not know the train had got away. I heard Cooper give three whistles, and then I thought something was wrong and that the train had got away. Taylor never at any time told me what was the matter. I have never discussed the matter with him. We may have talked about it, but I have not discussed it with him. We have talked a good deal about it together. I think we were about eighteen minutes on the incline from the time of pulling up until we started to chase the train. I remember distinctly the brake-test being made at Putaruru. I did not see the dial.

Court: I did not see the uncoupling of the engine from the train. Taylor told me after he came back that he had put down some hand-brakes. I do not know why he told me. He said also that Cooper had put on the screw brake in the van. That is all I know about the accident. I have told all I know so far as I remember. I know of nothing that will help to arrive at a conclusion as to the cause of the accident. I gave evidence before the Coroner. That is my evidence, pages 80 to 83, inclusive. I wish to correct my evidence. One hand was on 80 and the other hand of the dial was between 40 and 50.

H. PEE.

Taken and sworn at Auckland, this 27th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Inquiry adjourned until 10 a.m. on the 28th August.

WEDNESDAY, 28TH AUGUST, 1907.

This deponent, WILLIAM BANNERMAN, being sworn, saith:—

I am Manager of the Costley Home. I wrote the letter produced (Exhibit No. 20). I adhere to the opinions expressed in that letter. I am an ex railway servant. My actual experience of running trains extends over five years, as brakesman, goods brakesman, passenger guard, and railway-detective service, and while on that service I occasionally relieved on the service between London and Glasgow on the Caledonian Railway (called "West Coast route"). I was stationed at Glasgow. I left of my own accord. I went to England and joined the Salford Police Service. Prior to passing an examination as passenger guard I had to do with the Westinghouse brake. I have not worked it on as steep grades as 1 in 36 or 1 in 40. The steepest I think I worked on was 1 in 70. I only worked the brake on passenger-trains. It is a reliable brake in this far: it will pull a train up without delay. The use of it, to my mind, is that it will bring a train to a sudden stop without delay if everything is in proper working-order, but in our Appendix and Working Time-tables guards are instructed to apply the hand-brakes at terminal stations, and the drivers are instructed to apply the hand-brakes in case the train is not brought up by the Westinghouse brake. This is a precautionary measure, because at times the Westinghouse brake has been known to refuse to act. When applied the Westinghouse brake will pull a train up and keep it stationary for a period, but not for an indefinite period. Consequently I am of opinion that the Westinghouse brake used alone on an incline was never meant to keep a train stationary when disconnected from the engine. As long as the engine is attached the brake can be applied again. I do not think it is prudent to apply the Westinghouse brake, disconnect the engine, and leave the train on an incline. It is taking a risk. I should apply its rear hand-brake hard on. I should apply the hand-brakes of each van on a grade as steep as 1 in 36, and not depend entirely on the Westinghouse brake. On a goods-train I should sprag the train as well as put the brakes on. I should take no risks. In writing the letter I had not been approached by any railway official. I have

given an independent opinion. I have read the evidence. I am strongly of opinion that the train could have been caught. According to evidence at inquest the coupling was left ready for use and the bumping of the engine on the train would have placed the hook in position. Even if the engine caught the train and the Westinghouse brake could not have been connected with train they could have applied the Westinghouse brake to the engine, and reduced the speed of the train on the curve. The engine-driver would know the curves and straight lines, and endeavour not to strike the train on a curve. I have been in two accidents but not of runaway trains. I have never been concerned in a railway accident in which my conduct was brought in question. What has prompted me in this case is that I might have been a passenger on that train, and why should I run a risk of such an accident being possible.

Prendergast: I have not been over this line myself. It appeared in a paper a few years ago that the Westinghouse brake failed to act on a train at Glasgow or Edinburgh, and the train ran on to a street. I do not know what the cause of failure was. That was two or three years ago. I know of a place on the North British Railway where they will not use the Westinghouse, but disconnect it and apply the hand-brakes instead. That is on a grade of 1 in 30. The reason is on account of the steep grade, and they will not depend on the Westinghouse. In that instance the locomotive is taken off—possibly on account of the steep grade. I know of no other reason. Possibly it is because the locomotive is taken off that the hand-brakes are used. I do not know of the reason for disconnecting the locomotive unless it is because of the steep grade. The hand-brakes on the locomotive would hold the locomotive. The locomotives are not detached to prevent the smoke being a nuisance to passengers in the tunnel there. There is no centre grip on that grade. I have not been over the Rimutaka line. Heavy brake-vans are made and used specially on that incline on the North British line. I do not know what improvements have been made in the Westinghouse brake. The Westinghouse is intended to be used going down grades in the ordinary working of the train, but it was never intended to be the sole support of a train left uncoupled from the engine on an incline. The North British line is one which has been open some time. The Westinghouse brake has been in use over twenty years. Some of the trains at Home are fitted with the vacuum brake instead of the Westinghouse. The North British line (Queen Street Station) has been open over twenty years. I have several times seen a train overshoot a station, due to inexperience in the working of Westinghouse brake. Assuming the brake to be in perfect order and to be worked by competent experienced men, the Westinghouse is a perfect brake. Prior to starting a train the general custom is for the guard to test the Westinghouse from the van. I never saw any check used on the guard.

Baume: I was about twenty-two years old when I joined the railway. I joined as a shunter. Before that I came from a farm. I was a shunter a year or eighteen months. Then I was a brakesman on mineral trains. My duty was to perform shunting operations. I manipulated the brakes. There is only one brake—that on van and hand-brakes on wagons. There was no Westinghouse on those trains. During last six months of service I was passenger guard and railway detective. How long out of that six months I was detective I cannot remember. During my five years' experience I had to do with Westinghouse brake. In the five years I did not include my time as shunter. I was eighteen months shunter and three years brakesman. I was just over five years in railway service altogether. I was twenty-two years old in 1896. I was guard about twelve months and detective about twelve months. My time on railway was five years and one month. My certificate from railway shows I served from 1891 to 1896. I would be thirty-two in 1896, not twenty-two. I entered in January, 1891, and left in February, 1896, according to my certificate. My memory miscarried.

Court: In 1891 I became brakesman and left in 1896. During that time I was brakesman, passenger guard, and detective. I was passenger guard about twelve months. To become passenger guard I had to pass an examination before a Train Inspector.

Baume: My letter lays no blame on any one. I may have made a mistake in writing the letter as "Private and confidential." Referring to Home incident, the reduction of speed is imperceptible as the pilot engine catches up to the train going up an incline. The pilot engine would have no tender in front of it. In chasing a train down hill the tender in front makes no difference to the case. I read the evidence given at inquiry. The driver should have gone after the train as fast as his engines would take him, notwithstanding he had a tender in front—no lights in front—the night dark, and numerous curves on the line. The train would not gather the same impetus as an engine with steam on.

Court: The incident in my letter of the train being chased up an incline is different to the present case. I did not take into consideration the fact of the tender being in front of engine in this case.

W. BANNERMAN.

Taken and sworn at Auckland, this 28th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, CLIVE VIVIAN KERR, being sworn, saith:—

I am acting-fireman in service of New Zealand Railways. I have been in service about two years and a half. I have read portions of evidence given at inquiry. I read portion of *Herald's* report. No one has told me what has taken place. I was present at inquest at Rotorua. I have been acting-fireman about seven months. I remember joining Cooper's engine on the 3rd August at Putaruru. Cooper and I took over Leydon's engine there and did the shunting. I could not say what men assisted in shunting. Porters were there, but I could not recognise them in the dark. I only saw their lights, and do not know who was engaged in shunting. Three or four persons were engaged. I did none of the coupling or uncoupling. We took in water at Putaruru. After we finished shunting we picked up the van and then ran down on to the train. The other engine was up the line. A porter coupled our engine on to the van, but I could not say which porter did

it. I do not know who coupled the van to the trucks. I remember Taylor's engine being coupled on to ours. Cooper signalled Taylor's engine to come back. I do not know who coupled the two engines. I cannot say whose duty it was to do so. I did not do it. Cooper had a conversation with Taylor at Putaruru. I think the engines were then coupled. I overheard the conversation. It was that if we wanted to stop on the bank Driver Cooper was to give a pop on the whistle. I read the evidence of the drivers on that point. I heard the conversation, but cannot say who spoke about the whistle. I heard the brakes tested. I heard the escape of the air on engine when the brakes were applied. I do not know how far back the brakes operated. I did not notice the pressure-gauge just then. I remember distinctly the brake-test being made. It was not made at any other station. That was where I joined. I have been acting as fireman since accident on several occasions. I should say I could recollect every time it is made. In my mind now I have a distinct recollection of the escape of the air on brake-test being made at Putaruru that night. I was on the footplate at the time. I did not see the brakes released but I heard them released. I heard the air passing. It seemed to pass through the engine. I could not explain the noise. It was a sort of rushing noise. I think I was working the previous night. I think we assisted up the bank the previous night. That was all the work we did that day. I do not remember what hours we worked. The engine whistled on several occasions the previous day. I look upon the brake-test as a matter of course. It is always carried out. It is not part of my duty. After leaving Putaruru the first stop was made at Ngatira. Both engines took water there. The brakes were applied slightly there. I heard the reduction on the engine I was on. The handle was not shifted on my engine. I could hear the reduction passing through my engine. The brake was applied by leading engine. I remember stopping on incline. At Ngatira I heard the release of the brake also. I heard the same sounds at Ngatira as I did at Putaruru. I heard the sounds at Ngatira on two different times. When the leading engine stopped to take water was the first time, and the second time was when the second engine moved on to take water. The brake was applied on each of those occasions, and on each occasion I heard the putting-on and release. On the incline I heard the engine missing her beats. Cooper at once shut off steam and gave the whistle a pop. I screwed on my hand-brake and Cooper got a torch and lit it, and got down alongside the engine. Both engines and train came to a standstill. It is the usual thing to put on the tender-brake. Cooper got down on the driver's side. The train was then being held by the Westinghouse brake and my tender-brake. On the engines stopping I heard the Westinghouse brake applied. I should say my tender-brake acts on the same blocks as the Westinghouse. Cooper got down with his torch and Taylor came along from his engine, and they examined the sides of the engine. I did not then overhear any conversation. I was watching them from the driver's side. They examined that side and crossed over between the two engines and examined the fireman's side. Then they came back to driver's side and Cooper got underneath and Taylor stood alongside the engine. Cooper was underneath eight or ten minutes. I was out of my engine for a few minutes. I did not speak to Taylor when I got down. Cooper was under the engine when I was on the ground. Cooper told Taylor to get a hammer from me. I was on the footplate. Taylor came and got a hammer, but I did not hear Cooper tell him to do so. I could hear some one tapping under the engine. Cooper had a torch under the engine and Taylor had one. Cooper came to me and told me to put the lever in fore gear, give her a little steam so as to hold the weight of the train. Then he went along to the front engine. I gave the engine steam. I could not say what Cooper did at fore engine. Taylor went along to his engine and Cooper came opposite to his and gave me directions to put the lever in fore gear, &c. Then we went to Taylor's engine. Cooper was standing on steps or in cab of Taylor's engine. He stood there until they released the brakes and pumped up. I could hear the release. I was leaning out watching them. I heard the noise of brakes released, and I could hear the exhausting of the train being pumped up, and brakes were applied again with a reduction of 30 lb. or 35 lb. I saw the gauge at the time, but did not take much notice, but the gauge was down to about that. I did not take notice of the first reduction, but I did of the second. The pressure on pumping up was about 80 lb. I looked at the gauge as the train was pumped up. It is a usual thing to do. I cannot say what the gauge registered next day at the different stations. Stopping on a grade like that it was only natural I should look at the gauge. After Cooper stood on footplate of Taylor's engine they both got down again, and Taylor came along and went to uncouple. Cooper was coming towards the cab of the second engine. Taylor was uncoupling at the time. I heard the report of the hose. I was watching Taylor and saw him go in between van and tail of engine, and then I heard the report of the hose. At this time Cooper was by the cab, and said to me, "That'll do. Shut off steam." I had steam on holding the weight of the train when Taylor went to uncouple. I shut off steam immediately. Cooper got up into the van next tender. Then Cooper and Taylor came back to my engine, and I heard Taylor remark that he had dropped some hand-brakes—three, I think. He said he dropped three hand-brakes. Cooper said he had screwed on the van-brake. Cooper told me to give her a bit of steam, and we moved away slowly from the train. When Taylor was uncoupling and after the hose was uncoupled he sang out to his fireman to ease up, and I moved back a little. Then we moved ahead a little bit and Cooper and Taylor walked along driver's side of Cooper's engine as we moved along three or four yards. Then Cooper sang out to the fireman to stop, and steam was shut off. Cooper told Taylor to tell his mate that when we moved a bit ahead to shut off steam and let the second engine push the first engine. Then I gave her more steam and proceeded slowly along the line while Cooper and Taylor followed alongside the engine on driver's side. We moved along sixty or seventy yards. I watched Cooper and Taylor part of the time—not while I was pulling out the regulator. They remained on driver's side until we stopped. Cooper told me "That'll do," and I stopped. When we stopped Cooper happened to look round—I did not happen to see him actually turn round. I heard Cooper say, "Bert, the train is off." Taylor made a rush for his engine, and Cooper rushed for his own and got in, and

pulled the lever right forward and gave her steam. He gave three pops of the whistle, then three, and then three more. He did not say anything to me. We started in pursuit of the train. Cooper then called me over to his side and said, "If we catch the train reverse the engine and give her full steam ahead." Then he shut off steam and took a torch and got over the back of the tender. He told me he was going to drop the hook. I could not tell what they were doing in Taylor's engine. I think they had shut off steam. Cooper was out on cowcatcher for two minutes perhaps, and then came back into cab. I do not think he said anything to me then, or I to him. If he passed some remarks I forget what they were. I did not hear him call out to Taylor. I do not think Taylor would have heard him. Taylor's engine was controlling the speed. Our engine was running free so far as I know. Our engine had not control of Westinghouse brake. My tender-brake was off. We were under the control of the first engine. We followed the train for some distance. We reached scene of wreck and then came back to Ngatira, where both Cooper and I stayed that night. We talked of the accident. A lot of things were said. He asked me several questions. He asked me, "Do you remember what we stopped on the bank for?" and asked if I remembered what he did and what Taylor did. I was on the cab of engine with Cooper then and all that night, and part of next day. After giving up the chase there was no long conversation. It was about what happened on the bank and about the accident. There was no discussion as to how to account for it. He asked if I remembered about why we stopped on the bank, what he and Taylor did, about what I did about my giving the engine steam. He said "You remember the brakes being applied." I think that is all I remember at this time. I do not remember conversation about uncoupling or about the Westinghouse hose, or about the van-brakes. I did know why they stopped on the bank. I suppose he asked me so that I would not forget. He asked me what the pressure was on the second application. He said, "Did you see the pressure on the gauge on the second application?" I said, "Yes, I did." I said it was over 80. He did not tell me he had seen the gauge. I do not think he would see the gauge on the second application of the brakes. As far as I remember that was all he said. I have never spoken to Taylor about the accident. I never saw Taylor and Cooper speaking together after the accident. Taylor went to Rotorua that night with the wounded, and did not come back on Sunday. I did not see Taylor and Cooper meet after the accident. Before the inquest we did not all meet and discuss the accident. The four of us were never talking together at one time. I said before the Coroner that I was prepared to corroborate Cooper's evidence in every detail so far as I knew it. After we pulled up by the wreck Cooper left the engine. I could not say how long he was away. He was away for some time. I do not think Cooper ever asked me if I remembered if Taylor let down the hand-brakes before or after the uncoupling. I did not see the brakes let down. Cooper told me the brakes were dropped. He told me so after he had told me to ease up. We were uncoupled after he told me they had put the brakes on. It was not after we chased the train that I was told the brakes were let down. We were standing on incline when I was told. It was before we moved away from the train and after the uncoupling. I would not like to say whether each could have seen what the other was doing when they were putting down the brakes. When we eased up we never bumped the train. I never felt any bump on the engine.

Court: I am positive I saw Cooper enter the van-door. I could see over the tender. I have operated the brakes under the driver's instructions. We act on them any time on his instructions. The porters, as a rule, couple the train to the engine. It is the fireman's duty to see that the engine is coupled to the train properly. There is a rule to that effect. I have never had the "Instructions to Trainmen." By coupling the engine to the train I understand coupling the whole lot. I would not like to say that the fireman is expected to and is responsible for the connecting of the Westinghouse brake when he also couples the engine to the train. The pilot—the porter—who takes us up to the station generally attends to the coupling of the engines to train and the coupling of hose. The pilot generally does the whole coupling; the fireman looks at it afterwards. When I do it I couple the hook and chains, and couple the hose and adjust the cocks. Most of the firemen see to it before starting. It was done at Putaruru that night. I did not do the coupling that night. I think a porter did it. I went round afterwards with a torch and examined the couplings at back of my tender. It is my duty to do so. I do not know if the engine-driver also did the same. I could not say if he inspected the couplings that night.

Baume: I inspected the couplings and they were all in order.

Court: It was the fireman of leading engine's duty to inspect couplings between the engines.

Baume: I am sure Taylor's engine was not steaming when chasing the train. It steamed at the start and part of the way and then stopped steaming.

Court: I gave evidence before Coroner (pages 76 to 79). What I said there was correct. While we were shunting the van was on our engine all the time. I think we had a van on our engine all the time we were shunting. We had to shunt to get the van to the engine. We had to couple on to the van. A porter coupled us on. I did not do it. Afterwards when we were attached to the train I examined that coupling and the Westinghouse cocks. I could not say if Cooper also examined it. Everything was coupled up properly. The handles of cocks were down. I did not do any coupling that night at all. The only coupling I examined was that between the front van and the tender. I did not examine couplings between front truck and rear of van, and I cannot say who did that coupling. I did not examine that coupling. It must have been a porter or guard coupled it. If there is no pilot I do the coupling between the engine and the train.

C. V. KERR.

Taken and sworn at Auckland, this 28th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, THOMAS MAURICE COOPER, recalled, saith:—

Court: I did no coupling whatever that night, and I did not see any of it done. When we

picked up the van I was on the footplate and do not know who coupled up. When we joined on to the train a porter or guard coupled us. I examined the coupling between engine and van, and the cocks were open. I knew the regulation on that subject and I act upon it. The only coupling I was responsible for was the coupling between the engine and the van. We generally delegate that duty to our fireman. The fireman always does and very often the driver will also examine it. We never delegate the particular job of seeing the brake is coupled up. I never leave that to the fireman. The fireman has also to see the train is properly coupled up. I never trust to him to do it. If there was no porter or guard the fireman would couple the train to the engine and the Westinghouse brake also, and I revise the coupling. I did so that night, and found it in good order and the positions correct. T. M. Cooper.

Taken and sworn at Auckland, this 28th day of August, 1907, before me—Chas. C. Kettle, D.J.

This deponent, John Lambert Taylor, recalled, saith:—

Court: I did no coupling at Putaruru that night. A guard or porter coupled my engine to the other engine but I cannot say who. I cannot say who uncoupled us when we came in that night. I am sure the cock at the back of the tender was closed or my air would have been rushing away. When I went to turn the headlight down I examined the couplings carefully, and they were in proper position. I never examine the cocks on the train. I generally examine the cock between the tender and the next vehicle. That is the only one I am responsible for. The fireman is also responsible to see it done. Sometimes the fireman goes and does the coupling and puts on the cocks if there is no guard or porter to do it. I generally examine those couplings, but there are times when it is not done. I recognise it is an important duty. I say positively I examined the couplings that night. As far as I know I was the last person to examine them.

Baume: I would not start away without making such an examination knowing I was going up such an incline. I cannot recall instances where I have not made the examination.

Court: I could not swear I have never started from Putaruru without making the examination, but on this occasion I did examine the couplings. J. L. Taylor.

Taken and sworn at Auckland, this 28th day of August, 1907, before me—Chas. C. Kettle, D.J.

This deponent, Charles Henry Tyer, being sworn, saith:—

I am a porter on New Zealand Railways. I have been about eighteen months in service, and have been porter five or six months. I have not read the evidence taken on this inquiry in newspapers or otherwise. I know nothing of the evidence given, and am absolutely ignorant of what has been said at this inquiry. I have been staying in Auckland since yesterday week. I have not looked at a single newspaper. They never trouble me. I travelled on the train which met with an accident. I joined Taylor's train at Morrinsville. I took part in the shunting operations at Putaruru. The engine of my train was engaged in shunting for some time. I was not there when Leydon's train came in. I was having tea then. Leydon's train just got to the station when I came on duty again, but I do not know what time it was. I took part in the shunting again. Leydon's van was left standing on the track while Cooper did the necessary shunting for Rotorua train. Guard Lowe was in charge of the shunting that night. The train was made up on the track next to the main line. I do not remember Cooper's engine going down to the van. I do not know who did that coupling. While that was being done I was doing the coupling of the Rotorua train. I did not couple the engine to the van. I do not know who did it, nor have I found out since who did it. I only did the couplings between the wagons towards the front part. I did not do the coupling between the engine and the train. There were four, I think, engaged at the couplings and I do not know who did that coupling, nor have I heard who did it. I could not say how many wagons I coupled. Four or five I should imagine—in separate places, not in succession. I could not say how many wagons Cooper added to the train. I have no idea, and I do not know how many were on the train. Guard Lowe, Acting-guard Dwyer, the porter at Putaruru, and myself were engaged in coupling. I remember Taylor's engine being brought back and coupled to Cooper's. I was about half-way down the train then, and do not know who did that coupling. We were busy shunting—the ordinary run of shunting. I would call it an ordinary night. It was my first night there, and I do not know what shunting is usually done there. I had been at Frankton Junction for seven or eight months, and before that for about ten months at Auckland as porter. After trying the brakes the train started away. I was at the trailing van when the brake was tested where Guard Lowe was. I had a light. Guard Lowe and the Stationmaster were there when the brakes were tested. Harris was beside the van. I think he was talking to Lowe at the time. I could not say how long Harris had been standing there. The guard is subject to the directions of the Stationmaster. I saw the brakes go on. I was a few feet from the guard. I heard the brakes go on. I heard the ordinary clap of the brakes going on. I did not see any signals given. That was after the train was completely made up. I could tell the clap extended right through the train. I would not swear that every vehicle went on. I only know the brakes went on the carriage and the van. I put my light on and saw they were tight. The clatter of the brakes was as to a portion of the train, but I swear I saw the brakes go on the rear van and the passenger-carriage. I put my light on to see if the brakes were on properly for my own satisfaction and not in performance of my duty. I looked at front wheel of van and back wheel of carriage. If you stand out a little you can see if the van-brake is on. I was standing a little from the van. I heard the clap of the brake and put my light on and saw the brake against the wheels. I saw the brakes released. I saw them come off. I heard the hissing sound, and put my light on again and saw them come off. I might have been 6 ft. or 8 ft. from guard who was more towards the tail of the train. I did not see him signal. I was standing with my back

towards him. I would not be in his way while he was signalling. I was standing a few feet off the train—it might have been 3 ft. or 4 ft. I am certain I was not in the guard's way. I moved in a little towards the carriage after the brakes were put on. I just looked at the brake for my own curiosity. I deliberately looked at them. I intentionally did so. When the brakes came off I could not say for certain how far they came off—it might have been ½ in. or 1 in. I saw them come off ¼ in. and I was satisfied. I could not see the brake-blocks on other side of carriage. After I saw brake-test applied I got in the van. Kingdon was in there, and Guard Lowe and Dwyer got in afterwards. Kingdon was sitting in the van on opposite side to hand-brake. I cannot say whether Lowe or Dwyer came in first after me. No one else was in van except the four of us from the time we left until time of accident. I saw only luggage in the van. I never noticed the dial of the gauge. The first stop was at Ngatira. I could not say if Westinghouse brake was applied there. I was getting luggage ready for stations—for Ngatira. The others were, I think, sitting down. We might have moved on a couple of times—for water, for instance. I remember moving on once. I did not go out of the van and did not notice anything particular. She stopped and afterwards moved on about 2 ft. I do not remember if the whistle popped. Then we started up the incline. I do not know the road. We were all four sitting down talking. We were not having a game of cards. When we stopped no remark was made by any one as to cause of stoppage. Nobody moved or went out. We may have remained stationary five minutes or it may have been ten minutes, and then started to go back. Dwyer was sitting next the brake and I was next to him. I felt the motion of the train going backwards very slightly. After we had been stationary for a time—perhaps five minutes—I noticed the dial. I noticed it was 30 lb. to 35 lb. The hand was at 30 lb. to 35 lb. There is just one long hand on the dial. The colour is black. Looking at the dial you see numbers showing pressure and a hand on indicator. The hand was at 30 or 35. I made no remark when I noticed that. After a bit the air started to go out of the dial ; it seemed to exhaust itself in a minute. I have never noticed what the dial shows when the train is brought to a standstill. I have no knowledge of the Westinghouse brake. When I saw the dial at 30 or 35 I did not know what it meant. I watched it because the air was escaping all the time—the air was leaving the pipe. I noticed the hand dropping slowly. It only seemed a few seconds before it came right down to zero. When she got to zero the train started to move. Dwyer drew Guard Lowe's attention to the air escaping. He pointed to the dial, but I am not certain what he said. I am not certain whether he pointed. He drew Lowe's attention to it either by pointing or by word. I say so because I saw Lowe look up. That was before the train began to move backwards. Guard Lowe looked up and said nothing. Dwyer put the hand-brake on, and Lowe said it did not matter about putting the brake on. Dwyer gave it two or three turns and stopped because of what Lowe said. Then the indicator went down to zero. It was not down to zero when Dwyer turned the brake. When he did so the hand had about 5 lb. to go. Zero is down to nought. I do not know what the next number is in the ascending scale. When it begins to rise I do not know what is the next number. When Dwyer first moved the brake the train had not begun to move and the indicator had about 5 lb. to go. Lowe said to Dwyer, "Never mind ; it 's all right," and Dwyer stopped putting the brake on, and the indicator went down to zero and the train began to move. The train might have been running about a minute backwards when I heard whistles. Lowe pulled the Westinghouse tap down and I heard no sound. Then he applied the hand-brake in the van. Lowe and Dwyer together screwed it tight. Lowe screwed it tight, and then both together screwed it tighter. The train was gaining speed. Lowe went through and applied the brake on passenger-carriage and came back again. He went out on to the platform of the van at rear to see where he was. The speed was increasing all the time. I think it was Kingdon passed a remark. He reckoned it was all up with us—that we were going to destruction. That was all the conversation I heard. We were all alarmed. The speed increased and we were expecting every moment to come off the line. Lowe made no remark when he turned the Westinghouse tap. I could not say whether brakes were on when we started to move. Just before we moved I did not notice any bump. We started off very slowly. When we pulled up on the incline I did not hear any brakes go on. They might have gone on very quietly and I did not hear them. I am in the habit of hearing the sound of Westinghouse brake being applied. I am accustomed to it. I did not hear it applied before the train started back. While the van was stationary we were sitting down. We were talking, I think, but what the subject was I have forgotten. When the train started to go back I had no apprehension of danger. I thought there might be danger when she gathered speed. That was after the whistle for brakes. We might have been moving a minute before I heard the whistles for brakes. I had no conversation with Cooper or Taylor after the accident. I was hurt and taken to Sanatorium at Rotorua. On the way there I spoke to no one. I do not think I have talked to them since. Taylor came round to see how I was getting on, and we talked over the whole thing. He talked about our health and how we were buried in the wreckage. There was no talk of any kind at any time as to how the train got away. I had a conversation with Dwyer only as to the cause of the accident. I was with Dwyer in the same room at Sanatorium. Dwyer told me the cause was due to one of the engines breaking down. While I was at Rotorua Sanatorium Mr. Harris (Stationmaster) and Fireman Pee saw us, and Taylor saw us when we were able to get out on the verandah. Only Dwyer and I talked of cause of accident. When we were lying among the wreckage the passengers, or some one, said the engines had been disconnected. I can just remember talking to some one on the Sunday morning, but whether it was to a policeman or a solicitor I do not know. I never noticed if my statement was written down. There were two persons. It might have been a newspaper reporter I spoke to. That is the only statement I made that I know of. I could not say if it was written down or not. I have not talked to any one but Dwyer as to how the accident came about. I told the Coroner what I had noticed about the gauge. He was the first one I told. He put a question to me about it. I did not volunteer the statement. I remembered that through the accident. I have generally noticed

the brake-blocks as being on the outside of the wheels. Where I noticed the brakes going on the blocks were on the outside if I am not mistaken. I am doubtful about it.

Court: I gave evidence before the Coroner—pages 92 to 95, inclusive. C. TYER.

Taken and sworn at Auckland, this 28th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, ALBERT AUGUSTUS RAPPARD, being sworn, saith:—

Prendergast: I am a platelayer stationed at Ngatira. I have not given evidence before. I made a statement to Constable Spellman. I have read newspaper accounts of evidence here and there. I remember the 3rd August. I live close to the railway-line at Ngatira, and heard the train rushing by that evening. I knew there was something wrong when I heard the speed. I went out and saw nothing. I heard the engines coming. Ten minutes or a quarter of an hour may have elapsed between the passing of train and arrival of engines. The engines were coming very slowly, but I could not say at what speed. I stopped the engines and got on Cooper's engine. I fancied I had heard a crash and I told the engine-driver that, and we went to scene of wreck. The engine-driver did not tell me the cause of the accident and I did not ask him. I have known him many years. I had no conversation with him about the matter before or after the wreck. At the wreck there was no discussion about the wreck. I saw the vehicles that night, but could not make much of them. I was there again at daylight next day. I did not examine wreckage. It was not my business. I heard the passengers talking about what they were doing at time of wreck. I saw some of them and they asked where they were. Two passengers who spoke to me told me they were half asleep at the time the train began to run away. Three passengers and the doctor were standing together. Dromgool was one of them.

Prendergast: The four of them were discussing that they were half asleep when the train started to go back. Dromgool told me he was half asleep, that he jumped out before the train stopped and got to the wreck. I worked with Dromgool for a week.

Court: I do not know anything nor have I been told anything which I have not disclosed which will assist the Court at arriving at the cause of the accident. A. A. RAPPARD.

Taken and sworn at Auckland, this 28th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Inquiry adjourned until 10 a.m. on the 29th August.

THURSDAY, 29TH AUGUST, 1907.

On resumption of inquiry His Honour intimated that he had received a letter from a Mr. Symonds which those interested might peruse (Exhibit No. 22).

A subpœna was issued for the attendance of Mr. Symonds at 10 a.m. on Friday, the 30th August.

This deponent, ALBERT AUGUSTUS RAPPARD, being recalled, saith:—

Baume: At Ngatira there are two Maori pas. I have been at Ngatira not quite twelve months. On arrival of train there are any amount of Maoris about. They climb all round the trains. On the 3rd August they had to be put off the train. They climb all round the carriages and go inside, and very seldom get on to the van, but they did so on the night of accident and were put off by Guard Tyer. When at the wreck I rendered all the assistance I could.

Court: I never at any time heard of the cocks or couplings being interfered with. It would, I think, be a very likely thing that interference would take place when the Maoris and their children climb about the carriages and between the trucks. There is a danger under those circumstances of the cocks being interfered with. I have seen Guard Lowe put them off. I have no duty regarding the cocks and couplings. I cannot say if these are examined by the guard at Ngatira. I saw the engine go to the water-tank and take water, and then move on and stop for the other engine to water. There is a slight grade from the tank. I saw Tyer putting the Maoris off at the rear van. A. A. RAPPARD.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, CHARLES HARRY TYER, being recalled, saith:—

Court: I heard the evidence of last witness. There might have been seven or eight Maori children got round the van-door. They were coming inside the van, and I told them to move away. That was all. I have never heard of interference by outside people with the cocks or couplings. Any evil-disposed person could easily turn a cock in the dark. I could not say whether the cocks and couplings were examined at Ngatira before the train proceeded on its journey.

Baume: I was in the van and could not see what was happening down the train. From the inside I only saw the seven or eight children. It was at the back door of the van.

C. TYER.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, PETER DROMGOOL, being sworn, saith:—

Prendergast: I am a casual surfaceman in employ of Railway Department. I have read the evidence in the papers and also heard portion of the evidence given at inquest at Rotorua. Apart from this I have not seen the evidence in any other shape or been told anything. I was a passenger on the 3rd August by last train to Rotorua. I got on board at Matamata. I do not know who was driving the engine. I was travelling in the passenger-carriage which had four compartments.

I was in the second compartment from the van. Dr. Endletzberger was in the compartment with me. I got off and had dinner at Putaruru. I got on board again a few minutes before the train left. I remember the Westinghouse being tested once along the line, and I think it was at Putaruru. I was in the carriage and heard the clap of the brakes and hissing of the air. I have a slight recollection of it. I was simply a passenger and had no duty to perform. I remember the train stopping at Ngatira. I could not say if any shunting was done at Ngatira. We did not stop long, and I did not get out of the carriage where I was sitting conversing with the doctor. I remember the train stopping on the incline. I could not say whether I was sitting or lying down when it stopped. I went out on the platform. I was fully awake. The train was stationary. I might have remained a minute on the platform. I had a look round and returned to compartment. The platform I went on was the channel between the two compartments. When I went back I sat down, I think. I heard a click as if the train had started. When I was on the platform I heard the engines moving away. It was a dark, still night—very cloudy. There were no outside noises. I heard the ordinary puff of the engines. I know the noise the pump makes. I think it was the puffing of the engine I heard, and I judged the engines were going ahead to get water. I re-entered the carriage and sat down, and felt no motion of the train for five or six minutes. I then heard the click of the carriages, and thought we were on the move again. It was like the ordinary way the train starts. The train moved slowly. After going a few seconds she seemed to gather speed. About a minute after we started I heard three pops of the whistle—altogether. Three in half a minute. I heard three more pops and another interval, and three more pops—nine altogether. I went out on the platform as soon as the second signal was given. I saw then we were running downhill. I reckoned we were then going about sixty miles an hour—top speed. I had an idea we were going backwards. It was the first time I had been on that line. Dr. Endletzberger never knew anything about it. He was lying down all the time. I thought we were going down an incline towards Rotorua. I had an idea we were going backwards. I did not put my head round the corner to see. When I spoke to the doctor about it he reassured me, as I thought he knew more about it. Then I lay down. The doctor was reclining in a corner trying to sleep. Some one passed through the carriage after the third signal. He came back again in a couple of minutes. He passed through rapidly and I did not take notice who it was. I did not see what he did or where he went. The train was going top speed at the time he went through. I saw Rappard after the wreck. He was the first man I saw. I told him I was lying down and got tumbled on to the floor and scrambled through the wreckage. I did not jump out of the train or tell him I did so. The doctor had a conversation with Tyer. I remember the doctor congratulating him on keeping cool and on the way he acted. I do not know exactly what Tyer said. He seemed dazed—not quite sensible. I think the train stopped on incline not longer than six minutes. It seemed no longer than an ordinary stoppage. I think it was about a minute between the train stopping and when I heard the engine puffing.

Court: I gave evidence at inquest (pages 35 to 44, inclusive). I have not seen a copy of that evidence except what I have seen in the newspapers. When the train stopped on incline I went out on platform to see where we were. I remember looking out and seeing the bush at each side. I do not remember putting my head out and looking up the train. I heard the engine puffing. I did not hear any other sounds that attracted my attention. I have no recollection of hearing the Westinghouse brake applied. Just before the train started I heard a click. I thought the motion of the click was up hill and not down. I remember what I said at the inquest about what I did on the platform. I do not remember putting my head round the corner the first time. I did not do so the second time or I would have seen the van was leading. After the second time I went out I returned to the carriage and lay down. I have no recollection of hearing the Westinghouse brake applied on incline. I heard it once and that was either at Putaruru or Ngatira. When on incline the click I heard may have been the noise of hand-brakes. I heard eight or ten clicks. I heard them in the distance. I think the clicks were the clicks of the couplings—they seemed to come right through the train—and as soon as they came to the next carriage we moved off. I never heard any brakes put on. There seemed to be dead silence until the clicks came through. If the carriages were all hard up I do not know that the click would come through.

Baume: I said at inquest I heard a few clicks as of trucks, and I adhere to that. I do not know that I said "of trucks" any more than of carriages. I think I was about a minute on the platform, and then I went back and remained in compartment about five minutes. I understood the engine was going for water. The sound I heard of puffing was as of the engine moving off. That was about five minutes before the train began to move down. By "click of couplings" I meant the same thing as "click of carriages." I heard the pops of whistles about a minute, I think, after the train started. The clicks I heard were the last thing I heard before the train moved away.

P. DROMGOOL.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, ROBERT SIMPSON, being sworn, saith:—

I am Car and Wagon Inspector on Auckland Section of New Zealand Railways. I have held that position four years and a half, and have been twenty-five years in the service. On the 5th August I proceeded to scene of accident, and arrived there about 4.15 or 4.20 p.m. I made a thorough examination of the wreckage. Mr. Macdonald had been there before me but went on to Rotorua. So far as I know I was the first to make examination. I made the examination as part of my duty. I carefully examined every vehicle and every brake, and everything I could see. I took notes on the ground of what I saw. I have my original notes here [produced (Exhibit No. 23)]. I cannot say in what order the vehicles were placed in the train. The Traffic Department might know. I believe nobody can tell the order in which the vehicles were placed in the

train at Putaruru. Looking at the wreck as it lay there I could not tell their original order of marshalling. F 165 and F 190 were the vans. A 452 was the car. I first inspected wagon R 66. Every vehicle was off the line. I think the R wagon and the first van F 165 were pretty close together. The gauge produced was taken from the rear van F 190. The glass was not broken. R 66 was in fairly good order, and ran down the line on its own wheels. The brakes were on four wagons all lying in a heap. The Westinghouse blocks were up against the wheels, but not on by a pressure of air. The damage to the brake-gear was keeping them up to the wheel a bit. The brakes were not on any other vehicle. The hand-brakes were not on any of the wagons. On various wagons they were broken off. The hand-brake on F 165 (van) had been applied, but was not very hard on when I saw it. I come to that conclusion by the screw having been worked. On the car the hand-brake had been very hard on. On rear van F 190 the brake was all broken, and I could not say whether it had been on. On some of the wagons there were still hand-brakes which might have been applied and come off when the wagons fell over the bank. I could not from the wreck form any reliable opinion as to the position of the brakes when the train got away. If the brakes had locked the wheels the wheels would have skidded and shown a flat surface on the portion in contact with the rail. None of the wheels showed signs of skidding. Supposing the brakes were not on tight enough to prevent the wheels revolving the brakes would show signs of heat from excessive friction. Those on the car (452) did show it. I could not say the blocks on other vehicles showed it. I looked for it. If you put the brake hard on a heavily loaded wagon the wheels will skid. I examined the cocks of Westinghouse brake. Some of them were broken off, some in their place, and on one wagon (3497) I found the angle-tap on one end closed. When I saw the gauge of guard's van it was out of the van altogether, and the tap was closed. I could not from my examination form a reliable opinion as to the position of the Westinghouse brake when the train got away. I know a fair amount about the working of the Westinghouse brake. Taking into consideration the length and weight of train, and the Westinghouse brake working perfectly at a pressure of 80 lb. with a reduction of 30 lb. or 35 lb., it should have held the train on the incline. I should think it would hold it for about forty-five minutes. It depends on the leakage, but all the vehicles would not be leaking. I have found the brakes to hold on a flat for five and six hours, and longer. I should say it would not hold so long as that on an incline. There is a greater strain on an incline and a tendency to relax the brakes. As long as there was an equal pressure in the cylinders on a reduction of 25 lb. it would hold the brakes hard on. If there was a leakage in the train-pipe the blocks would gradually creep on, but with no heavy pressure on the wheel. I consider the Westinghouse apparatus was in thorough working-order on this train. It had been thoroughly overhauled. We overhaul them regularly about once in twelve or fifteen months. In the meantime the cocks and couplings of hose are constantly under the eye of guards and train-examiners. The guard would report anything wrong to the train-examiner, who would report to me, and I would take steps to rectify the defect. The overhaul made is thorough, the parts being washed and cleaned and greased where required. All the joints and connections have to be kept very tight to prevent the escape of air. If an escape of air was taking place from the cylinder it would be detected, because the brakes would go off that vehicle, which would be noticed.

(Examination deferred.) ROBERT SIMPSON.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Letters put in—Locomotive Engineer to Chief Mechanical Engineer, Wellington (Exhibit No. 24), and Car and Wagon Inspector to Locomotive Engineer, Newmarket (Exhibit No. 25).

This deponent, WILLIAM CROMBIE, being sworn, saith:—

I am Stationmaster at Auckland Railway-station. I have been over twenty-nine years in the service. I had eighteen years' experience on Home railways also. I know the rules pretty well. I am in supreme control at the station as to standing trains and seeing they are properly equipped. The guards and porters and persons employed in shunting are all under my control (Rule 168). Where a train is marshalled—after the engine is coupled on a few minutes before the train is ready to start—the air-pipes are filled. A train-examiner is present and signals for the brakes to be put on, and travels from one end to the other of the train examining brakes. Then he signals for release of brakes. If he finds a new coupling necessary he tells me, and I hold the train until he has renewed it. I do not think he ever goes along examining the cocks and couplings. I do not share responsibility with him. Rule 202 is pretty well enforced at this station. I do not do it myself, but see that the guard does it. I see him do it. I am on the platform when the trains start. I agree that the examination of the brakes before the train starts is very necessary. I know Rule 203. I exercise a supervising vigilance. Wherever there is a train-examiner the same course is gone through. Unless there is a train-examiner nobody examines the brakes, &c., not even the guard, but it is the guard's duty to see that his train is in order. As he passes through he looks at various things, but he does not do so before the train starts. In connection with the train leaving Putaruru, it was the duty of Stationmaster to see that the guard examined the train as to couplings and brakes before it started. You cannot constantly see that men do their duty. It is my practice to ask the guard if everything is all right. I have never known of any interference with the cocks. Such a thing has been reported to me once. It was reported that some children interfered with the cocks on an Onehunga train. The train-examiner and not the guard performs the duty of seeing that the brakes are all in order. The train-examiner tells the guard or signals to me that eveyrthing is all right. If I have not seen the train-examiner the guard signals to me that everything is right. The train-examiners at this station are very particular—too particular I sometimes think. There is an examination at this station of when the brakes are put on and when they are taken off.

Baume: I have never followed up the train-examiner or guard to see he does his work. I take their report. All Stationmasters take the report of their officers, as they cannot do the work themselves. I cannot see with my own eyes what kind of examination the officer makes. The rules are not carried out in their entirety, but for all practical purposes they are carried out. We send fifty or sixty trains from Auckland each day. I could not send away more than half that if I had the duty of personally examining brakes and couplings and cocks. A train-examiner could not examine all the couplings, and joints, and cocks in less than twenty minutes on a train of ordinary length. The guard can see by the application of the brake that it goes on the last vehicle, and in practice that is all that is done. By walking along you can see if the cocks are open or shut. If, when the brake is applied, the brake goes on to the last carriage on the train, he has every reason to be satisfied. I endeavour to comply with Rule 203 by getting a signal from the guard or train-examiner that everything is all right.

Court: At the terminal station it is the practice that each vehicle is examined, and all the couplings and brake apparatus is examined. I am of opinion the greatest care or vigilance ought to be demanded by those whose duty it is to see to these things. W. CROMBIE.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

ROBERT SIMPSON'S examination continued:—

Baume: I put in a report as to examination of wreckage. I stated therein that I did not find any wheel showing signs of skidding. It is impossible from the condition in which I saw the wreckage to say whether any of the brakes were on or off at the time the train started from the incline. I found two cocks closed—one on L 3497 and one on 7778. The one on 7778 had some dirt about it, and it is possible it might have been driven closed in consequence of the accident, but there was no such appearance on L 3497. Its appearance was consistent with it being closed before the accident. None of the trucks were cut out when I saw them. The handles were all in working-position. ROBERT SIMPSON.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, LOUIS HILL, being sworn, saith:—

I am a train-examiner. I have been about nineteen years in the service. I have been train-examiner about six years in Auckland Station. I know the rules regulating my duties. I know the "General Instructions to Trainmen." When train marshalled ready to start and engine coupled on, I go to the engine-driver and tell him to apply the brakes .Previous to that, when train brought to station by the shunters, I examine that train in all the Westinghouse couplings and taps, and the chains and hooks. When engine put on I ask driver to apply his brakes. He does so, and I go from vehicle to vehicle to see if the brakes are on or if there are any leaks. I go right to end of train. I give the driver or fireman the signal to release the brakes, and then I go right to the engine again, examining each vehicle to see if the brakes are off. I then inform the driver if the brakes are all right. I do not always report to the Stationmaster. The driver should not leave unless the brakes are all right. Sometimes the Stationmaster is there and sometimes not. As a rule the train-examiner and driver are responsible for the Westinghouse brakes being right. If the Stationmaster is there I give him a signal. Trains sometimes leave without my signalling the Stationmaster. If I finish five minutes before the train starts and another train is on other side waiting, I go and attend to that train without reporting to Stationmaster or guard. When I am in attendance the guard does not do anything at all with regard to the brakes. He has no responsibility. If I am not in attendance the driver would not go—unless his brakes are tested by an examiner. If there is no examiner it is the guard's duty. It is the guard's duty to do exactly as I do at the station here. To examine a train of twenty-two vehicles would take the guard about half a minute a vehicle or less than that—that is, to examine the couplings and taps. I consider such an examination is a necessary one, and a necessary precaution to take. In my experience I have discovered leaks of Westinghouse brakes. They are readily discoverable. Part of my examination includes examination of the dial on the engine. It is not part of my duty to see it, but I frequently do see it. I do not go into van and see what reduction made. The cocks will always retain their position. They will not shake down. They would if they were loose enough. They are made stiff enough to prevent their being put out of position by vibration or jarring of train. Hanging a heavy overcoat on the cock would probably bring the handle down. I have never known them to be interfered with. On a dark night a person might easily turn one down without his being noticed.

Prendergast: We always notify the driver or some responsible officer of the result of examination of brakes.

Baume: I cannot tell you how many trains a day I examine. I do nothing else but examine trains. I suppose I send away about ten or fourteen trains a day. There are other trains I examine. I examine all the trains that go out of Auckland during my shift. I examine the incoming trains as well. My shift is from 4 to 12. I do not always devote half a minute to eacn carriage. It all depends on the length of the train. I devote about fifteen seconds to each carriage. A carriage is about 47 ft. long. I suppose it would take me five seconds to walk that. As I walk along I examine the vehicle. It might take me fifteen seconds to walk along the vehicle examining. I spend very little time between vehicles. You can tell at a glance whether your taps are down and your couplings coupled. If they are out of order you know instantly. You look. There is a difference between a look and a glance. You stand and look at it. I can see without standing. Directly I start to examine a train I am practically walking along all the time. There is no need to examine with a hammer. On incoming trains I use the hammer. It would take me about ten

minutes to examine a train of fifteen cars. I usually take that time. The fifteen are brought there before the engine is on. I examine that train, and then the engine is put on and I examine the brakes. I make two examinations—ten minutes for the first examination and five or six minutes for the brake-test. An average train would take me about ten minutes to make the two examinations together. It would take me about ten minutes to examine an incoming train. That keeps me going pretty well all the time. In our spare time we have other things to do. I am engaged about six hours examining trains. A fair average is fifteen minutes a train. I do not handle either the cocks or hose unless there is something wrong that I can see with my eyes. I can see the cylinders from the lower side. On the first examination I go round both sides of the train. I look to see if the pistons are out to see if the brake requires taking up. I do not see how the guard can make the examination that we make without delaying the train. It is not possible for him to make such an examination and keep his time-table.

Court: It is easier to examine the brakes in daylight. At night I have a lamp, and make the same examination as I do in the daytime. It is very seldom I am hurried. I have plenty of time to make my examination. A thorough examination is very essential. One cock turned the wrong way dislocates the whole gear. I know Putaruru Station. There is no examiner there. In my opinion, when there has been shunting to make a train up, the guard should make the same examination as I do. It is all the more important as he has to negotiate heavy grades. I examine the hand-brakes, truck-brakes, and van-brakes. On a grade of 1 in 36 supposing there was no Westinghouse brake the hand-brakes would hold the train, but I should put them down on every vehicle. Supposing I had the Westinghouse brake and wished to leave the train on the incline, and did not know as a fact that the Westinghouse would operate through the train, I would first find out whether the Westinghouse did act through the train. I would communicate with the guard and tell him what I was going to do. With the Westinghouse on they could not push it down the incline. I doubt whether one engine without the Westinghouse brake could hold the train. Two might.

Baume: I have no experience of train-running.

Court: I have been up and down the line a lot with the train before the line was open for traffic. I was getting timber out for the workshops. In my opinion three truck hand-brakes and one van hand-brake at head of train would not hold it. They would retard it very little.

Baume: I have never been a brakesman but have seen a lot in shunting, but not on an incline. If the Westinghouse was on the whole train I do not think there is any necessity to put hand-brakes on. Common-sense may tell me a little more than experience.

Court: I would not leave the train on the incline any time trusting only to the Westinghouse brake. I should not leave the train at all without warning the guard.

LOUIS HILL.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, ROBERT HAMPTON, being sworn, saith:—

I am a railway guard on New Zealand Railways. I have been a guard between sixteen and seventeen years. I am mostly on mixed trains. I know the incline in question. Have been over it many times when I was running on Rotorua express. Once I ran a goods-train from Putaruru before Westinghouse brake was put on. Supposing I was there making up a train for Mamaku, marshalling it myself, I would test the brakes in the usual way by giving the driver a signal to test the brakes. If the brakes applied properly and released properly I would report to Stationmaster and ask his signal to move away. At night-time I would give the driver a signal by light to put on the brakes. I would be standing at rear of train. I am speaking of a train wholly made up at Putaruru. Standing at rear of train I would signal by a light, and would hear the brakes apply, and could put your light on also to see, and on releasing brakes I would apply my light to see the brakes release. I would not examine the gauge. The couplings of Westinghouse must be right if the brakes go on. If I had not done the coupling myself I would have to go along the train to see that coupling hooks and chains were right, and to see that the hose was connected and that the taps were right. Starting from where the train is made up I would examine each vehicle. I have the Westinghouse Brake Instructions. The rule as to examining every vehicle is complied with at a terminal station as Putaruru was on this occasion. Every coupling apart from the Westinghouse-brake couplings should be examined. It is very important. I have an idea where the 48-mile peg is. Supposing on that incline I was guard of a train of twenty-two vehicles, and the engine-driver desired to disconnect the engine from the train, I would as guard expect to know something about it, unless the driver himself made the train secure before he uncoupled. I have the Appendix. I know the rule on page 6 as to engineman whistling. When the driver stops, intending to disconnect his engine on the incline, I would expect him to give me some warning. I have the rule-book. I know Rule 231. I am prepared to say what I think is correct. I have never seen a train left on an incline with only the Westinghouse brake, even with three or four other brakes. I should certainly secure the train with hand-brakes, and I should expect some intimation unless they had thoroughly secured the train. I should expect to be consulted as guard in charge of the train. Supposing the driver was looking ahead on a dark night, you could not signal him. I carry a whistle, but the driver would not be likely to hear the whistle if the train was moving except it was just starting. Of course, with the Westinghouse brake the guard could stop the train if he desired. Assuming the Westinghouse to be in proper condition and worked by competent enginemen, it is a good brake. I have never had any misgivings on that point. I have never known it to fail when called upon. I never heard of it failing on New Zealand railways previous to this. In my opinion it is a simple brake provided it is kept in good working-order. It is a brake the working of which is easily learnt. I do not think there is any difficulty about the working of it.

Prendergast: I have the rule-book. I know Rule 205. Complying with that rule will attract the driver's attention.

Baume: I am speaking of the case of a whole train made up at a station. A few trucks added to a train I had brought in I would not call "making up a train." As guard in charge I would be responsible for the marshalling, and would have seen that the coupling is done, and would not have to examine it again before he signalled to apply brakes in the usual way. The usual test is to signal the driver to apply brakes. I see the brake go on my van. I signal for release of brakes; see the brakes go off. That is the practice and it is regarded as sufficient. You satisfy yourself that the Westinghouse must be coupled owing to its acting on the van. That proves that the Westinghouse must be connected all through and that all cocks are down.

Court: I have received the Instructions to Trainmen. I have not received any instructions modifying them.

Baume: If the guard has been looking after the shunting he must be satisfied that his train is properly coupled. I never knew Westinghouse to fail in working it. I have no reason to believe the Westinghouse would not hold a train on an incline of 1 in 35. It would depend on the time, but I have never had experience of the Westinghouse on an incline for a quarter of an hour, and am unable to express an opinon as to whether it would hold the train if the train is cut off from the engine. It is a good brake, but beyond that I cannot go. I cannot express an opinion as to how long the brake would stop on without the engine. Properly applied I do not know the length of time it might stop on. I am not prepared to say it would not stop on for a quarter of an hour.

R. HAMPTON.

Taken and sworn at Auckland, this 29th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Inquiry adjourned until 10 a.m. on the 30th August.

FRIDAY, 30TH AUGUST, 1907.

This deponent, JOSEPH MACK, being sworn, saith:—

I am a railway guard. I produce copy of letter said to have been written by Mr. Edwards, General Secretary of Amalgamated Society of Railway Servants. (Exhibit No. 26.) He resides in Wellington. The letter was written to secretary of Canterbury Branch of Amalgamated Society of Railway Servants. I obtained this copy myself out of Mr. Edwards's office while I was in Wellington. The Railway officers have never, to my knowledge, received an official instruction from Railway Department to the same effect. The guards in Canterbury questioned the necessity of making a detailed examination of the train after every shunt, and unhooking of a vehicle, &c. No direct communication from General Manager has been distributed to the guards. The General Manager wrote to Mr. Edwards. I saw the original of this letter but not the General Manager's letter. I am chairman of Frankton Junction Branch of Amalgamated Society of Railway Servants.

Prendergast: It was always considered by the guards that it was not necessary to repeat the tests upon a train that had not been broken since it commenced its journey. If a train had been broken it was considered sufficient to test the brake from the van. If I dropped a vehicle off the train I would do the recoupling myself. I would trust to a porter to do the coupling, and then I would have the brake tested. If the porter was competent to do the shunting he would be competent to do the coupling, and I would trust to whoever did the shunting. This letter has practically not made any difference in the tests. I know Rule 186. I do not suggest that that rule dispenses with the necessity for the guard to see the train is in proper order.

Court: I know the Instructions to Trainmen. Instruction at bottom of page 4 only applies to a train leaving a terminus—not to trains interfered with on the route—not where a vehicle has been put off or one attached. I know the guard's van and the passenger-carriage came right through to Putaruru from Morrinsville. I do not know how many trucks were uncoupled, but a number of them were. The engines were uncoupled, and assuming the van of second train was uncoupled I say that was not a reconstructed train that left Putaruru. I say that instruction (page 4) is limited by the instruction to guards (page 9). The guard has to see before the train starts at terminal station that the train is properly coupled. I would call the reconstruction of a train where the engine picks up vehicles here, there, and everywhere, and the new vehicles are always examined by the guard, and they do examine the vehicles and pipes as far as possible.

Baume: I am a first-class guard of twenty-two years' experience. I have been porter, shunter, brakesman, and guard, and I think I have a clean record. I have had about sixteen years' experience of running trains. I am at present running trains on main line, where there are heavy grades, sharp curves, and the bulk of the line unfenced. On that particular section the brake-power and its invulnerability is an important factor, and I have to place implicit reliance and confidence in my brake-power. I have had considerable experience of Westinghouse brake. I know the Ngatira bank where accident happened. From my experience I say that a train could be safely detached from the engine and left on that incline held only by Westinghouse brake if the brake is in good order. I do not consider the putting-down of hand-brakes in a case such as the one under consideration as absolutely necessary; it is simply making assurance doubly sure. I do not read the instructions to put down hand-brakes to mean to put down hand-brakes on all the carriages. In putting down three wagon-brakes and one van-brake I consider Taylor put on sufficient hand-brakes in addition to the Westinghouse brake, knowing that he was going 60 or 70 yards away. I consider he left his train safe. I know Taylor and Cooper. From a traffic man's point of view, and as one who has worked with both men, I consider both men thoroughly trustworthy to take charge of any train. That is the reputation of both men. I think they used

all reasonable precautions to insure the safety of their train. That is my deliberate opinion. I am not here in the capacity of chairman of my branch. The butt of that train came through from Frankton. The guard would be in absolute charge of the shunting at Putaruru. The Stationmaster would not interfere with Guard Lowe as to the making-up of his train. Guard Lowe would not consult with the Stationmaster. The Stationmaster would not in any way interfere with the shunting or the brakes. Lowe was an experienced guard. The Stationmaster would come out and ask the guard if his train was in order, and if he had tested the brakes and was ready, and he would take the guard's word. It would not be practicable for the work to be carried on in any other way. Before the guard started to test the brakes he would make an examination of the coupling of each new vehicle that had been attached unless he had an experienced man with him, when he would depend upon him just as much as the Stationmaster depends upon the guard. It is not obligatory on the guard to personally inspect every new coupling provided the guard has a man whom he considers experienced and in whom he would trust.

Court: Where that experienced man left it to another experienced man, the guard would use his own common-sense as to whether he made a personal examination.

Baume: If all the regulations were strictly observed the railway service could not be carried on. No train would run to time if the Stationmaster had personally to examine the couplings. It would not be possible for the service to be carried on as the Department expect the service to be carried on. The guard could not run to time if he attempted to carry out the regulations. Guard Lowe would be satisfied the train had been properly coupled before he made the brake-test, and I believe he would satisfy himself. After vehicles have been attached or detached the guard stands by his van and signals for the brake-test, and the operation of the brake satisfies him.

Prendergast: If I were in charge of a train under the same circumstances as Guard Lowe was, and the engine was cut off on the incline, I would not expect to receive any warning. I have never known a guard to receive a warning under similar circumstances. I consider those enginemen were justified in detaching their engines and leaving the train without any communication to the guard. I have never had a train stop on the grade and the engine detached. In such a case I would put on my hand-brake and go to see what was the matter. I differ from Guard Hampton. I consider Guard Lowe or some one should have put on the hand-brake and gone up to the engine to see what was the matter. I do not think he should have put on other hand-brakes as he walked up until he found out the cause of the stoppage. In the event of a short stoppage on the bank the object of putting the hand-brake on would be to give the enginemen a slack coupling to get away. The guard's van would not hold the train, but it would hold it sufficiently to give the engine a slack coupling. As he heard the train starting again he would release his brake. I know Rule 231. I consider three hand-brakes and one van-brake together with the Westinghouse brake was sufficient under the circumstances. Before they lifted the hook of the engine they would know if the train was standing or not. The stoppage of a heavy train on that bank is not unusual, but I have never known the engines to be detached there. Had the guard been notified he could have taken every precaution to insure the safety of the train. The engine-driver is equally responsible with the guard, and no doubt the driver would take the same precautions as the guard would. I do not say that Rule 231 does not apply to a train fitted with Westinghouse brake, but I say that the rule applies more to a train not fitted with Westinghouse brake, and there are sections in New Zealand not fitted with the Westinghouse brake. We rely upon the Westinghouse brake. Nine out of ten guards would have done as Guard Lowe did that night.

Court: I know page 6 of Working Time-table. I think that rule is still in force. I do not consider one of the enginemen ought to have whistled in accordance with that rule when they stopped, because these whistles are given occasionally when brakes are required to be taken off. I know Rule 317. In my opinion as an experienced guard, they should not have whistled under rule, page 6, that night. I would understand from three pops of the whistle on an incline that the driver wanted the guards to apply brakes. Several times I have had three short whistles given me to indicate that the brakes are dragging. There is no rule saying three short whistles shall mean brakes are dragging. Experience would teach the guard immediately the train stopped to apply his van-brake without a whistle. I say that is what he ought to have done. After the experience of this accident I would not as an engine-driver disconnect the engines without warning the guard. The rule states they were to whistle, but I do not think it necessary. Now, after the accident has happened, I would expect them to whistle. I do not know of any case where the engine has been detached on an ascending grade. This is the only case I have ever heard of.

Baume: The application of the van-brake would be a further precaution, but I do not think it would have saved the train. The most sprags I ever saw on a van are two, either before or since the Westinghouse brake came in. Reliance is placed on the Westinghouse, and the others are merely additional precautions.

Court: For reliance in the running of a train, the guard practically entirely relies on the Westinghouse brake. Coming into Auckland Station I would put my hand-brake on. Under those conditions I do not depend entirely on Westinghouse brake. There is an instruction to apply the hand-brake and it is done in practice, but if the Westinghouse failed the train would go through into the street.

J. MACK.

Taken and sworn at Auckland, this 30th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, FREDERICK SYMONDS, Jun., being sworn, saith:—

I am an engineer by trade, and reside at 32 Wakefield Street. I am employed at A. J. PARK and Co.'s, Quay Street. I wrote the letters produced (Exhibit No. 22). I have not been requested by any one to come here. I was connected with the railways nine years as a fitter. I have worked at repairing Westinghouse brakes. When a fitter is repairing brakes he has to ask the driver

questions, and find out what is wrong from him. I consider in that way the fitter gets experience of drivers. A fitter is always among the repairing of brakes, and becomes competent to form an opinion about the brakes. And the opinion I have formed is that the Westinghouse Instruction-book is not generally understood by drivers. The Book of Instructions is complicated, in the early part, at any rate. It is written in rather a complicated way. I came to that conclusion by the questions I have been asked by drivers. I think the Instructions might have been written more clearly. On the spur of the moment I cannot suggest where it can be improved. I found the book difficult until I had a little practical experience of the trade.

Prendergast: I left the service nine years ago. At that time the Westinghouse was not fitted to trains—only to some engines. Five or six drivers asked me questions, and from those questions I found them backward in their knowledge of the brake. I always enlightened them.

F. SYMONDS, Jun.

Taken and sworn at Auckland, this 30th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, FRANK SKEEN, being sworn, saith:—

I am a porter in employ of Railway Department for last eighteen months. I am nineteen years old. I am stationed at Putaruru for the last seven months. I have read the papers twice. I saw the evidence of Enginemen Cooper and Taylor and Porter Tyer and Surfaceman Rappard. That is all I have seen. I remember on the 3rd August Guard Lowe getting a train ready for Rotorua. Taylor's train arrived at 5.20. I was on duty until 8 p.m. I was engaged in shunting operations in which Guard Lowe, Acting-guard Dwyer, Porter Tyer, and myself were engaged. I remember Taylor's train being marshalled and put on a side track. I did not couple up a vehicle that night. I was assisting Guard Lowe in signalling with my hand-lamp. I did no coupling or uncoupling. I remember Cooper coming on duty that night. I saw his engine pick up his van after he had finished shunting. I could not say who coupled the engine to the van or who coupled the van to the train. I could not say who actually did coupling in respect to any particular vehicle. Dwyer and Tyer were at the points at one time while Lowe and I did the shunting. I do not know who did most of the coupling. I was working with Guard Lowe most of the time. That night I had nothing to do with the points. I cannot say if an inspection of the train was made. I was walking along the train and looked at some of the couplings, but found they were coupled up. I examined them in a casual way as I was walking past. I was not instructed to do so. I consider it was my duty when I was passing to see that the vehicles were coupled up, and if not coupled to couple them. As a railway servant it is my duty to have an eye to these things. I heard the release of the brakes. I heard the hissing noise when the brakes were coming off. I could not say how soon before the train started the test was made. I should say it was immediately before the train started. The van Cooper picked up was standing on the main line from the time Leydon's train came in.

Court: That night I looked at cocks and couplings of Westinghouse brake. The cocks were down—that is, of all I did see. It was a fairly busy night. I heard Engineman Taylor say to Cooper that Cooper's headlight must be turned down. Mr. Harris was doing office-work. He was there when the train left. I did not see him making any examination of anything. The train was made up on the line next to main line. Taylor's train came in, and one or two wagons for Putaruru were put off and put in the shed, and his train was put off main line on to the through road. In Cooper's (Leydon's) train all the empties were for Putaruru, and they were put off, and the loaded wagons were shunted on to Taylor's train. There were not extra many vehicles taken off the train.

Baume: The train would be marshalled at Frankton in the order in which wagons were to be dropped—that is the ordinary way, but I could not say if it was so marshalled that night.

F. SKEEN.

Taken and sworn at Auckland, this 30th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, RICHARD EDWARD ROBERTSON, being sworn, saith:—

I am Westinghouse Brake Superintendent for New Zealand. I am employed by Westinghouse Brake Company. My duties are to instruct drivers generally on brake matters, and assist Railway Department, and look after interests of company. I am an engineer, and have been fourteen years with the company. The brake used on New Zealand railways is Westinghouse automatic quick-action brake. The instruction is given by lectures, and when I am in the centres the men come to me and ask questions, which I answer as far as possible. The instruction-book produced (Exhibit No. 4) is that issued on railways in New Zealand. It is up to date. I know of the Instructions to Trainmen, issued by the Railway Department. A good deal of it is repetition of the instruction-book (Exhibit No. 4). My experience has been that there is no brake in the world better than the Westinghouse. It is the best brake in the world. Assuming all the parts are properly put together and in perfect working-order, then in the hands of persons who understand it, it can never fail. The working of it is very simple. In New Zealand it gets proper attention. I say so from experience of travelling frequently. It has been about seven years in general use. I have never during that period had complaints about the brake—not one. As a rule, defects and leakages will stop the train. There is only one part likely to leak and that is the coupling. The cylinders and appliances work with as absolute certainty as you can get, and are not easily put out of gear. About twelve thousand vehicles passed through my hands in New Zealand, and many thousands in New South Wales, including one line of 7,000 of one class. I do not know of any accidents in New Zealand consequent on the failure of the brake. My experience of railwaymen in New Zealand is that they are very careful. The efficiency of the brakes depends principally on the

cocks being open, otherwise you cannot have a continuous brake. The engine-driver cannot tell if the whole of the cocks are open without inspecting the whole train. He might guess how far back the cocks are open. He relies on the guards, or shunters, or train-examiners. I have heard the evidence on this inquiry and know the whole circumstances. Assuming the brake was in perfect working-order at Putaruru, and assuming there was a pressure of 70 lb., and that those conditions continued until they stopped on the incline, 1 in 36—a train of twenty-two carriages, weight 226 tons—and a 35 lb. reduction was made, the brakes should have held the train without question for a period of about an hour. It might hold longer. I have had a brake hold for twenty-four hours. The brake is not absolutely airtight, and it is impossible to make it workable and get it absolutely airtight. An hour would be a fair time for an ordinary train. If the leaks were very bad you could not run the train, because the brakes would apply. The success of the brake depends upon its being worked properly. It is worked properly. The guard can only apply or release them. Assuming train fully charged at Putaruru, but on the course of its journey a cock was put up between some of the vehicles underway along the train, the guard could apply the brake from his van. He could not replenish the brake, but it would be perfectly good so long as the pressure lasted. There is not necessarily a leakage from the reservoir. If you cut the train in two you could not tell in which portion the power would die first. If the cocks between passenger-car and trucks had not been turned on, the guard's van and passenger-car would be dead as to Westinghouse brake. If the train was connected right through, the train would never run away. I say there must have been a cock closed or the train would never run away. If the train was properly tested at Putaruru it ought to have been in good working-order on the incline; but the train stopped at Ngatira a considerable time, and it is quite possible the cock was closed then. If that were the case it would explain the whole accident. Of course, if a cock were shut anywhere, at Putaruru or elsewhere, it would account for the whole thing. I could not say at what part of the train the closing of the cock would cause the accident. The cock must have been closed, I think, at head of train or the wheels below that would have shown some sign of skidding. The state of the dial in the guard's van at time of train running back would indicate that the cock must have been closed some time. If the cock was closed at Ngatira a considerable quantity of the air would escape up to the time of the accident. The grade would have nothing to do with the escape. A test on the grade with everything in order would only show that the train would stand about an hour before the brakes would release. The Westinghouse brake is used throughout the world.

Prendergast: When the brake is applied the calculated pressure is about 75 per cent. of the empty weight of the vehicle. I cannot say how many vehicles to which the Westinghouse was applied would have held the train. When I say the brake is not absolutely tight I refer to leakage at the couplings. It is practically tight. I do not think the gauge could have showed a reduction from 35 lb. to zero in two or three minutes without the brake going on. If the cocks were open the train would never run away, but if closed in front of train it would run away.

Court: The reservoirs are charged in about a minute. The pumps are kept going, in my experience. The pump works automatically. It stops itself when not wanted. It keeps 90 lb. pressure in reservoirs, and when the pressure is below 90 lb. the pump automatically works again.

Prendergast: I have travelled from end to end of the colony several times, and the brakes are very well looked after. I never saw a brake-failure. I do not think in any part of the world are they so well looked after as they are here.

Court: In my opinion it is important cocks and couplings should be carefully examined, especially at terminal stations. If the connection is not properly made you could not apply the brake-test on the last vehicle. I would rely on the brake-test on the last vehicle without a view of intermediate couplings. An examination of the connections would be only a superficial one. Where the test is made I say each vehicle should be examined. They must look at the brake-pistons. They do so as they run past—as they walk quickly past. At terminal stations a very careful examination must be made. At other stations I would rely on a brake-test from the van. It is quite possible that if a cock was closed in front of the carriage the guard might hear the clatter of the brake along the preceding carriages, and without examination of the wheels of his van assume that the brake was on them. It is essential when a brake-test is made that the guard should see the brakes go off and on the wheels of rear van and carriage. He should see it, and not trust to the clatter or sound of the brake applied or released. The application of the brake is a clap, and the release is a hissing sound. Supposing cock is closed near front end of train at Putaruru, and assuming that before it was closed the whole train had been charged up to 80 lb., and it became necessary to apply the brakes on the vans behind closed cock, I am doubtful if there would be sufficient air left in the reservoirs to apply the brakes—that is, assuming an hour and a half had elapsed from closing of cock. The engine-driver would not know and could not tell. Assuming all the cocks to be open for whole length and the driver charged up to 80 lb. before disconnecting engine, he would close both cocks—that is, that on tender and that on truck—and break the coupling. He would on recoupling release the brakes. The Westinghouse Brake Company supplies all the Westinghouse-brake appliances. The Railway Department does not make them. The appliances are specially tested before being fitted to vehicles, and after being fitted are specially tested again. The very greatest care is taken to see that they are in working-order before they are used. After brakes are put on the Railway Department take charge, and see that they are kept in working-order. Once the Department takes them over the Westinghouse Company has no further responsibility, and no further contract to keep them in order or inspect them. I simply represent the company in New Zealand to give advice and to watch the interests of the company.

Baume: I presume the brake-test must have been applied at Putaruru. The brake must have been released there. No doubt a small amount of leakage goes on between each coupling. If it was absolutely tight it would not matter how long the train stood. If the leak is of a rapid character the brake goes on in a moment. Assuming some one interfered with a front cock at

Ngatira, there would be no brake-power, practically speaking, in an hour's time, and ten minutes earlier there would be very little brake-power. The engine-driver would be justified in assuming that the brake-power was all right as at the test at Putaruru, and that the air was throughout the train. If the cock was partly open to the extent of $\frac{1}{8}$ in. the high pressure would go through the train just the same. I have never heard of any kind of indicator on any kind of engine sticking. It may be possible but not probable. I cannot believe there was 35 lb. of air in guard's van as stated. If there were and it went away in a few minutes the brakes must have gone on. If the dial was stuck and misled the observer it would remain stuck. I think the men were mistaken about the 35 lb. The interval of time between interference with cock at Ngatira and the train running away would account for accident. An engineer would be perfectly justified in leaving a train on a grade of 1 in 35 for a period of ten minutes or a quarter of an hour when the Westinghouse brake had been applied from a pressure of 80 lb. The brake-power remains longer on some trains than on other trains. If the Westinghouse is in good order and condition the train could be left on the incline an hour, but I would take certain precautions even with the Westinghouse on. To put down three wagon-brakes and a van-brake was a very fair precaution. I would trust my life and the lives of other people to the Westinghouse brake. It is to be relied on all the time. If I were an engine-driver I would presume the Westinghouse was in good order, and if he so presumed he would be justified in presuming the train was safe on that incline for ten minutes or a quarter of an hour. With a train-load of people I would put down a certain number of hand-brakes as well. I would put half the brakes down at least. I would do so as an extra precaution, although I would trust the Westinghouse—that is, because I am on an incline. A driver is justified in assuming that the Westinghouse brake properly applied will hold a train on an incline of 1 in 35 for a period of half an hour. Had I been in the driver's place I would have put more hand-brakes on than he did—as a cautious man I would. I would take every precaution. After a certain period the lives of passengers would be in danger on a train left on an incline of 1 in 35 which has been charged with a 25 lb. pressure on the Westinghouse brakes before the train was disconnected. Notwithstanding I say this: I would take other precautions. I have not been a shunter, brakesman, guard, or engine-driver. When the indicator is at zero the brakes may be hard on and no air in the train-pipe. The indicator only shows what air there is in the train-pipe.

Court: I gave evidence at inquest (pages 130 to 149, inclusive). What I said before Coroner is substantially accurate. Where a train is in a perilous position, and the engine is going to be cut off from it, although I have every faith in the Westinghouse brake, I would apply at least half the available hand-brakes as an extra precaution. I approve of the Railway Rule No. 231, and of rule on page 6 of Appendix.

R. E. ROBERTSON.

Taken and sworn at Auckland, this 30th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, MICHAEL BOYLE, being sworn, saith:—

I am a bushman. I was at Ngatira about twelve months ago. I knew Guard Lowe very well. About twelve months ago I had occasion to speak to Guard Lowe about Maoris. About that time the Bartholomew Company were putting in a siding. I was standing on the platform one evening when the train came in with Guard Lowe in charge, and the Maoris were jumping from the siding on to the platform and back again. I noticed one of the boys in vaulting across the couplings put his hand on the tap, and in vaulting turned one of the taps across. I noticed this and called the guard, and said, "Jack, some of the Maori boys have interfered with the brake-taps there." He asked me which carriage and I showed him, and he fixed it up, remarking he would he half-killing some of the Maoris yet.

Prendergast: I have not been in this Court before about half past two to-day. I did not see the tap before the boy jumped, but I knew what he had done. He pulled it into a horizontal position. He caught hold of the tap with one hand, and with the other on the platform of the carriage jumped over the couplings. I knew Lowe well and knew he was a very careful and efficient officer. I know the incline in question very well, and I know by the evidence that the train was left on it. It is very hard for me to answer as to what Guard Lowe would have done had he known the train was to be left there without the engine. From what I knew of him I think he would have gone to see what was the matter if the engine was to be detached.

MICHAEL BOYLE.

Taken and sworn at Auckland, this 30th day of August, 1907, before me—CHAS. C. KETTLE, D.J.

Exhibits.—Nos. 28 to 34: Seven photographs of scene of accident and wreckage.

Inquiry adjourned until 10 a.m. on the 2nd September.

MONDAY, 2ND SEPTEMBER, 1907.

This deponent, JAMES MARCHBANKS, being sworn, saith:—

I am engineer to Manawatu Railway Company. I am a member of the Institute of Civil Engineers. I was assistant to Mr. Fulton originally, and have been in charge ten years. I was seventeen years with the company altogether. I have had experience of Westinghouse brake. I have seen it since it was installed in New Zealand. We use it on Manawatu line. We have hand-brakes on all vehicles. We have lever brakes on all four-wheel trucks, and have a hand-brake on all vans and carriages. The brakes are kept in good order and condition as far as possible, and it is essential they should be so. Assuming Westinghouse brake is kept in good order and condition and that it is worked by reliable men who understand it, I have every confidence in the brake. It is a good brake and will do all that is required of it. We have had no accidents, but occasionally some of the gear has got out of order as will happen with working-parts. The air-pump on the

engine is one of the most essential parts of the whole brake, and most likely to get out of order. It must be kept in good order. The pump is kept going continuously. When standing at a station it may be shut off to save steam. If an engine is standing attached to a train the pump should be kept going, but I should say it would be a reasonable thing to shut off the pump if the engine is standing disconnected—that is, if the engine is not going to be used for shunting. But even then it would probably be kept going. The pump maintains the pressure in the reservoir. We pump to a pressure of 95 lb. usually. The air is taken through pipes through the whole train, charging the auxiliary reservoirs on each vehicle. When the train is marshalled and the engine connected the auxiliary reservoirs would be charged up to 70 lb. throughout the whole train, and to enable that to be done the extreme end cock in guard's van must be closed. The hose-connections throughout the train—the couplings—must be complete and the cocks opened, and in that position the brakes can be either released or applied in a couple of seconds. The time depends on length of train. It can be applied either by engine-driver or by the guard, or if a hose is uncoupled without closing the cocks the brake would be applied. Assuming there is no air in any part of the tubes, but the main reservoir is charged, and a cock is closed behind the engine, and assuming that a cock still further behind is closed, the engine-driver would know the cock was closed by observing his dial, particularly as he charged his train. If he did not carefully observe his dial he would not know the whole train was charged. If he started pumping up knowing the subsidiary reservoirs were empty he would know a cock was closed. But he would not know unless he knew the condition of the rest of the train as to the reservoirs being full or empty. The cocks and connections at stations should be most carefully examined. It is also essential that a brake-test should be made. It is essential that the person watching the test should see that the blocks are on. He would only see them go on the wheels of the vehicle by which he is standing. He would satisfy himself by walking along the train that the blocks were applied to every wheel. It would be his duty to see to it. I know the General Instructions to Trainmen. Before the train proceeds the guard should see that the brakes are all properly released (page 4). It is essential that the couplings and cocks be examined. I agree with instructions on pages 5 and 9 as to inspection. It is essential. It is also essential that the instruction on bottom of page 5 be complied with. We use the Government rule-book, with special instructions of our own. I approve of Rule 231. We have the same rule. I agree that the engineman, if he intends stopping the train for any length of time on an incline, should inform the guard by whistling. He certainly should warn the guard before uncoupling his engine and leaving the train on an incline. I have seen plan of train [produced] with its weight and length. I should say the engine-driver was not justified in leaving that train on an incline of 1 in 36 without warning the guard. I should say, if the engine was leaving the train they should drop all the hand-brakes. They should take every possible precaution. Assuming the Westinghouse brake has been applied to the whole train, or that the engine-driver thinks so, and the engine is going away 60 or 70 yards, three wagon hand-brakes and one van screw brake would assist to hold the train for some time. Three wagon-brakes and one van-brake would not hold the train without the Westinghouse brake. I should say from calculations I have made that when the air had reduced by leakage to a pressure of 20 lb. on the cylinders the train would start to move. The train if weighing 226 tons should stand for fully half an hour on an incline of 1 in 36 under the Westinghouse brake alone applied to every vehicle on the train. Personally, I should not have disconnected the engine and left the train without first warning the guard or applying all the hand-brakes. I may say I have never run a train. It would only take a few minutes to apply all the hand-brakes. If in good order they would hold the train without the Westinghouse brake. Now and again a train gets stuck on an incline and you have to divide the train and take part of the train, leaving the remainder properly secured on the track. Supposing two trains were amalgamated at Putaruru, both trains having been broken to a certain extent, and supposing a terminal test had previously been made, I should have been satisfied, on the brake-test being applied, by seeing it come right through to the wheels of the van. Where couplings had been broken I should make an examination of those couplings before the brake-test. The guard would not necessarily report to the Stationmaster if the train was in good order. The Stationmaster would assume that the train was in good order if the guard had not reported adversely to him. I know of no brake better than the Westinghouse. It is on three-quarters of the railways of the world. The Westinghouse brake we have in New Zealand is one of the latest patterns. On my own line we have had two cases in which the cocks have been interfered with. One case was recent—within a month—and in that case the cock was interfered with by a passenger, presumably while the train was in motion. Our cocks are arranged differently to those on Government railways. In the other case a cock was closed while the train was going up a hill. It had been closed after examination. In another case we found a cock closed on a train; that was due to bad examination, and the brake leaked on and pulled the train up. We have no notice warning people not to interfere with cocks.

Baume: I know the weight and position of the train in question. Going up the incline, if the driver hears a false beat of his engine, it is his first duty to shut off and apply the brakes, examine his engine, and find out what the trouble is. If he cannot find the cause and thinks it necessary to uncouple, it is proper to do so. He tries to find out by every means in his power. Before he uncoupled I think he should have communicated with the guard. It was an error of judgment not to do so. I can understand the trouble with the engine would be strong in his mind. I can quite realise that the trouble with the engine would be the first thing in his mind at the moment. I should have expected the Westinghouse brake to have remained on half an hour. In the driver's mind the Westinghouse might be synonymous with safety. Of course, he must bear in mind that he is taking away the pump. We recognise the brake will leak off. If he had made a big application the brakes would set, but it would rather help the brake to leak away more quickly. When a big reduction is made—say, 35 lb. or 40 lb.—then there is that pressure in the train-pipe and a

tendency for the brake to leak more under the greater pressure. The three wagon-brakes and one van-brake would have a slight retarding effect. The only safe thing was to put on all the hand-brakes. The only safe way to leave a train on an incline with the engine disconnected is to apply all the hand-brakes as well as the Westinghouse. The vital part is the taking-away of the pump. A first-class fireman or second-class engine-driver has no knowledge at all of the coefficients of friction, &c. Applying common-sense, it is knowledge. You cannot tell what leakage goes on. These men have only ordinary experience of Westinghouse brakes. After uncoupling, train remained motionless. The brake must have held originally. A cock closed in the front part of train would account for accident. It is reasonable that guard would control couplings. The guard may have examined couplings after shunting. A competent guard would make his coupling-examination before his final brake-test. Under ordinary circumstances the action of the guard in depending upon the action of the brake in the rear van would be sufficient for him to think it was acting right through. If guard gave signals I should be justified in believing that driver would think that brake was in working-order. There would be no reason for driver to think that brake was not working at time of uncoupling. He would have no means of knowing that a cock was closed at rear of train. He would, two or three carriages from engine. He may not notice it unless he was paying strict attention. My company carry two sprags. Two sprags alone would not have held that train on that grade. I should say that it would want a sprag to about half the carriages. I think if he had put on the hand-brakes it would have been quite sufficient. If the brake was in moderately good order it would have held on much more than five or six minutes. I should say that it would not be possible for train to run away if Westinghouse brakes applied. It is quite possible that brake had been tampered with or closed. It would take a very short time to put on hand-brakes.

Prendergast: Detaching engine in that position was hazardous, and under circumstances every precaution should have been taken. Assuming that the full reduction was made on Westinghouse brake on train I consider that the brake approximately must have been operative on about one-third of train to have held it for about five minutes.

Court: Having regard to circumstances of this accident, it is my opinion that if existing rules are not already clear on the point—and I think they are—they should be made quite clear as to the right of engine-drivers to uncouple their engines from trains on grades without first warning and conferring with the guard in charge of train as to what steps should be taken before uncoupling engine to secure the safety of train.

J. MARCHBANKS.

Taken and sworn at Auckland, this 2nd day of September, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, ALFRED LUTHER BEATTIE, being recalled and sworn, saith:—

I am Chief Mechanical Engineer of Government Railways of New Zealand. The train to which accident happened was fully equipped throughout with Westinghouse brakes. The brake apparatus was fitted to the two engines and each vehicle. The usual practice on British railways is not to fit all of the goods stock but only the passenger-stock. I mention that as showing that the equipment of the New Zealand railways as regards the Westinghouse brake is up to date. The Westinghouse brake was introduced on the Wellington – Napier – New Plymouth Section in 1901. On the Auckland Section partially in 1901 and generally early in 1903. On the Hurunui–Bluff Section partially in 1902, generally in 1905. Since its introduction on New Zealand railways the Westinghouse brake has proved to be an efficient and satisfactory brake in all respects. So far as I am aware it has never failed to stop a train when required, provided, of course, that it has been properly handled and properly connected. Return produced compiled from official records. (Exhibit No. 35.) The only case that has been reported of the Westinghouse brake failing to stop a train when required occurred at Tariki Road Station in Taranaki district. In that instance the train overran the platform, because a cock in train-pipe was closed between third and fourth vehicles from engine. It was a mixed train. Train consisted of about twelve carriages and a van. It was ordinary express. The cock which was closed was at north end of fourth car from front. It was closed during shunting operations and not reopened. There was no accident; simply overran station. Since the introduction of Westinghouse brake we have run trains equipped with that brake approximately 23,000,000 train-miles, and the only failure reported was case mentioned. We keep our brake returns in same form as Board of Trade returns. Return put in (Exhibit No. 36) compiled from Board of Trade blue-books, covering a period of five years, during which time trains on British railways ran upwards of 323,000,000 train-miles, and during those five years under the heading of "Failure or Partial Failure to act when required in Case of Accident to a Train or a Collision between Trains being imminent" there were no failures. Under the heading of "Failure or Partial Failure to act under Ordinary Circumstances to stop a Train when required" there were sixteen failures in five years, or an average of one failure in upwards of 20,000,000 train-miles. Those failures were due to following causes: viz., failure of air-pump, 7; cocks not opened, 7; failure due to connection on engine with other brake, 1; failure for which no cause is given, 1. The Westinghouse brake so far as I know is kept in thoroughly good working-order on New Zealand railways. There is no stint of men or material. The desire of the Department is to keep the Westinghouse-brake apparatus in best possible condition. I am quite satisfied that the Westinghouse brake is the best brake we could have for New Zealand railways, one of the strong points being that it operates on every vehicle to which it is applied at same moment, its action being automatic. I might also mention that by reason of the Department having so comparatively recently adopted a continuous train-brake the New Zealand railways have been fortunate in obtaining the latest and most efficient pattern. The Westinghouse brake on a 1-in-36 grade, on a train of 226 tons, would have been amply powerful to hold that train for a certain length of time assuming that the brake was connected and in operation throughout that train. Any reduc-

tion over 25 lb. results in loss of air through leakage without any corresponding advantage in holding-power. Assuming that the brake was operative throughout the whole of the train, and that the pressure was 80 lb. with a reduction of 30 lb., I consider that the brake should have held the train from half to three-quarters of an hour. I may state that since accident I have made a special test on an incline of 1 in 40 on a train of six vehicles, and in fifty minutes, on that incline of 1 in 40, all the brakes were released. They released by the natural leakage of the air from the tubes and reservoirs. These wagons were not attached to an engine, and the reduction was 35 lb. Copy of brake-test put in (Exhibit No. 37). All vehicles were picked at random—no selection. As showing a certain amount of light on this particular point, it may be of interest if I hand in tabulated statement of a trial made on New South Wales railways in 1901 (Exhibit No. 38). The particulars are published in a New South Wales parliamentary paper. In that test the train consisted of forty-nine vehicles and an engine. A certain number of the vehicles were fitted with pressure-gauges, so that the reduction in the air-pressure, due to leakage, could be observed. That train was set apart specially for the various brake-tests which were being carried out by a board of five experts appointed by Government. Grade, 1 in 30. It is therefore fair to assume that those vehicles had been specially prepared for test purposes. Everything would be in prime condition. It will be seen from the return I have put in that eighty-three minutes elapsed between the time that the engine was detached after applying brakes until the brakes became inoperative and the train began to move. If the hand-brakes on all the vehicles had been applied they would have been sufficient to hold the train, apart from Westinghouse brake. I should have put the whole lot down, but I admit that less than all would have held the train. On a grade of that kind with the engine detached and an element of uncertainty as to how soon the engines would return, I should have applied all the hand-brakes on the train as a matter of prudence—that is, on a grade of 1 in 36. An inspection of the couplings at an intermediate station is not necessary unless the couplings have been interfered with by shunting operations. Any portion of that train arriving at an intermediate station and not having been uncoupled at that station, it would not be necessary for the guard to make an inspection of those couplings at such intermediate station; but it is necessary and absolutely essential that the guard should, by means of the brake-test, satisfy himself that the brakes were in operation right through to the rear of the train. If he found that the brake readily applied on his signal and readily released on his signal right through to the van, he might then be satisfied that the train-pipe was properly connected and all the cocks opened. He would stand at the rear of the train, he would have the brakes put on and released, and he would see that they did apply and release by night as well as by day. He would have to satisfy himself by actually watching. The fact that the brake-blocks went on and released would satisfy him that the continuity of the train was unbroken. If one or more of the cocks were almost closed it would make a difference in that the brakes would not readily apply or readily release. If the guard was an experienced man he would readily see that. It is a duty cast on the guard to see that the train is properly coupled up when it has been disconnected. At a terminal station many of the vehicles put on are taken out of a siding, and may not be as perfect as those in a train which had left a terminal station. The guard is responsible for the proper coupling of the train, but he could satisfy himself by his assistants' assurance that the coupling is properly done. Then he tests the train as before described. I do not think it necessary that a train which has not been broken should be tested as to brakes being in order at every stopping-place. At every stopping-place where there is a train-examiner that examiner would examine every vehicle and its train-connections. There is no train-examiner at Ngatira or Putaruru. If it proves to be the fact that the cocks are interfered with at Ngatira, then it would be well to apply the brake-test there before the train proceeds. The matter of testing brakes at all intermediate stations will be earnestly considered by the officers of the Department. It would take rather more than a minute to make the test. I wish to have it placed on record that the alleged tampering with the cocks at Ngatira is news to the Department. It was not reported to the Department. Had we had that knowledge we would have taken steps to meet it, and now, having the knowledge, steps will be taken to meet the difficulty. Only cars in good running-order are placed on the track. The detailed examination made at a terminal station includes many more items than merely seeing that the brakes are properly opened and the brake-hoses properly coupled. An engine-driver uses the Westinghouse brake either to hold the train when entering a station or when descending a grade, and whenever necessary on emergency. The question of the driver's knowing how far back the brake is acting refers to when a train is standing, but when a train is running under ordinary conditions he would know whether the brakes had hold of the train or not. Even when entering a terminus like Auckland, a driver would not be worse off with the Westinghouse brake than before its introduction. Mamaku is the summit at an altitude of 1,884 ft. There is no train-examiner there. The train might not stop at Mamaku, but if it did stop there, there would be no brake-test there. We have a rule requiring drivers approaching a terminus to approach at such a speed only as would enable them to pull up with the hand-brakes only if necessary. The instructions at page 6 of the Appendix are certainly in operation. They have never been cancelled. It is true the instructions were in existence before the Westinghouse brake was installed. The "Notice to Enginemen" (Exhibit No. 18) is not in conflict with the Appendix. It is the fireman's duty to couple up. He is the responsible person. (Rule 192, page 81.) See also "Instructions to Firemen" (bottom of page 8). I submit the rule and instructions do not conflict. There is no reason why a driver with his own hand should do everything if he has a competent fireman to do it. The engineman satisfies himself under instruction at bottom of page 8 by the brake-test in conjunction with the guard. The couplings (Rule 192) include the hose-couplings. I have heard the evidence as to the stopping on the incline. I say the driver was perfectly justified in stopping if he suspected anything was wrong with his engine. The instructions on page 6 of Appendix, and Rule 231, Rule 269A, and Rule 213 also bear upon the matter. Rule 187 and Rule 117 all bear upon his

conduct in such a case. The drivers should first have informed the guard of their intention to detach the engines. Had they done so the guard would have been responsible for seeing the train was properly braked. I have heard the evidence of Mr. Bannerman. The conclusion to which I came was that he did not know what he was talking about—that is, as to conditions on New Zealand railways. I have seen the wagons damaged on the 3rd August. The brake-gear has been carefully examined, and, so far as can be ascertained, apart from breakage due to derailment, the equipment was in good working-condition at time of accident; but, of course, I cannot say anything as to continuity of the train-pipe, as to whether cocks were open or shut. I have not examined them in detail, but I have done so generally, and have the assurance of those that did examine them in detail. A loaded wagon does not skid so readily as a light one, but if it does skid the effect is much greater. I do not think there was more advantage in one engine than two going after the train. I do not think they had any chance whatever of catching it. There was an advantage in the two engines being together if they had caught it. Three hand-brakes and one van-brake would certainly not hold the train without the help of the Westinghouse brake. In my opinion the Westinghouse brake was not operative throughout the train. I believe there was a train-cock shut somewhere towards the front of the train. I have examined the broken valve-yoke, and it is quite possible that a breakage in it was the cause of the engine going off its beat. [Plan of yoke, showing fractures, put in. (Exhibit No. 39).] The breakages are hard to account for. It might have been let fall or damaged at the time they were re-erecting the engine recently. A crack would cause it to open and shut. It may have got injured in various ways. It is unlikely if it was perfect when on the engine that it could have been broken there. It has been in use a good many years.

Court: I do not know whether the by-laws as to interference extend to interference by people with the brake-cocks. A method of communication between the engine-driver and guard is established on many railways restricted to passenger-trains—that is, by a cord and gong at each end. In New Zealand we run mixed trains and cannot have such cord communication. At the particular place where the train stopped, which was on a curve, I think the driver could not see the guard, but I am not sure. The driver might have whistled and the guard would go to the engine after putting on his brake. The advantage of communicating with the guard would be that he could have had a brake-test and discussed the question of putting on hand-brakes.

Baume: The driver and guard would have come face to face. When the train was at Putaruru the shunting would probably be under the control of the guard, who would satisfy himself that the couplings were all right, but not necessarily by personal inspection. He would satisfy himself by the coupling he himself had done and by the assurance of the person assisting him in the coupling, and he would be justified in so satisfying himself just as the captain of a ship delegates certain duties to officers under him. I have heard the evidence as to how the brake-test was conducted. If done as stated it was a perfectly satisfactory test. The guard would be justified in taking the proper application of the brake on the van as proof that the couplings right through were properly connected. The engine-drivers also would have every reason to believe that the brake had been properly applied throughout the train, and was in proper working-order. There was no duty imposed upon the guard or driver to make a fresh test at Ngatira, and no part of the regular practice. Their belief in the continuance of the state of things that existed at Putaruru would be perfectly justified. The engine-driver was perfectly justified in stopping the train at 48-mile peg, and so far he had no reason to doubt that the condition of things as at Putaruru remained the same. So far they committed no fault. I believe if the Westinghouse brake had been properly on it would have held the train for half an hour. They would be justified in holding that belief also. Taylor was born September, 1881, and joined the service in 1901. I produce his record of service (Exhibit No. 40). Taylor had only been on this run about seven weeks. Two days on as driver and two days on as fireman each week. His reputation is quite good—steady, reliable, and a good worker. We should not have promoted him had we not had confidence in him. I have Cooper's record of service [produced (Exhibit No. 41)]. He also has a good record. His experience on this particular line was less than Taylor's. Cooper by going under the engine was risking his life on the efficiency of the brake. They committed an error of judgment in uncoupling without signalling to the guard. I think they committed another error of judgment in not putting down more than three wagon-brakes and one van-brake. This notwithstanding the fact that they would be justified in believing the train would hold half an hour without putting the hand-brakes on. My reading of the words "sufficient" hand-brakes is that they should have put down all the hand-brakes in order to hold the train without the Westinghouse. My reading of the words "extra precaution" means such precaution as would obviate the necessity of placing any reliance on the Westinghouse brake. It is a fact that in several small sections in the colony the Westinghouse is not affixed. The rules, however, are of general application, and framed to meet the requirements of all the sections. The regulations apply to all trains—with and without the Westinghouse brake. These trains without Westinghouse brake require to strictly adhere to the regulations as to hand-brakes and sprags. A heavily loaded train from Newmarket to Auckland not fitted with the Westinghouse would require to come down with a number of the wagon-brakes applied. With a Westinghouse the same train would not require the application of hand-brakes. If the cock had not been closed there would probably have been no accident, as the train would probably have held for half an hour. After the train ran away I am perfectly satisfied Cooper and Taylor did all they could and should have done. I consider, as far as I can judge from the evidence, they acted quickly and promptly, and in getting out on the cowcatcher Cooper did so at risk of his life. I have seen pressure-gauges in steam-boilers stick at certain points. Taking Tyer's evidence, if the 35 lb. pressure had disappeared as quickly as he said, the brakes would have applied hard. Each vehicle fitted with the Westinghouse brake carries its own brake-power, and therefore the length of the train is of no moment. Each vehicle stops on its own account.

Prendergast: If the brake-test was made as stated it was in my opinion sufficient. He would have to be assured as well as to the couplings.

Baume: I understand the guard was a thoroughly experienced guard with a good record.

Court: As to instruction at bottom of page 24 of Appendix, the guard of necessity has to delegate his duty to competent persons. As to Rules 183 and 186, I am of opinion the words "must satisfy himself" do not necessarily mean that the guard must see for himself with his own eyes. He must satisfy himself through others. The guard is really captain of the ship, and others must take their orders through him. The Stationmaster may delegate his duties. He may have a foreman or an assistant Stationmaster. The rule does not require him personally to perform the duties any more than the captain of a ship is required to perform the duties personally. Certain trains do not start from passenger-platforms and the Stationmaster may not see them. Under Rule 203 the Stationmaster satisfies himself by catechising the train-examiner. The train-examiner cannot delegate his duties. He must do his own work. The guard may arrange with a certain porter to do certain shunting and the porter must do the shunting, and if the guard thinks that porter a competent man he accepts that porter's report. When, as at Putaruru, an engine is severed from a train the cocks are shut off at the tender of the engine and the front vehicle of the train, and when the engine is put on again, it is all-important those cocks should be opened again when the engine is recoupled to the train.

A. L. BEATTIE.

Taken and sworn at Auckland, this 2nd day of September, 1907, before me—CHAS. C. KETTLE, D.J.

Inquiry adjourned until Tuesday, the 3rd September, 1907.

TUESDAY, 3RD SEPTEMBER, 1907.

This deponent, JAMES THOMAS DWYER, being sworn, saith:—

I am acting-guard on New Zealand railways. I was appointed acting-guard nine months ago, and have been in the service nine years. I have not seen the evidence given at this inquiry or been told the evidence. I read the evidence given at inquest, when I gave evidence also. On the 3rd August, at Putaruru, I joined the train which was afterwards wrecked. I went on duty about 6.30 p.m. From that time until train started I was helping to shunt. I coupled some of the vehicles together in the front part of train. I only made one coupling that I remember. I coupled the leading van on to the first wagon. I mark the one on the plan with a blue cross. I put the hoses together and put on the chains, and opened the taps. The taps were both up when I put them down. I do not assume I did it; I am certain of it. I have a clear recollection of doing it. Only three additional trucks were put on after I came on duty. The others had been coupled up before I came on duty. Guard Lowe was in charge of shunting operations. I do not know who coupled the engines together or who coupled the engine on to van. No one went along the couplings before the train started that I am aware of. After making the coupling I have mentioned I went into front van and came out again. The brakes were tested at Putaruru. I was about half-way down the train on my way to rear van. I saw the signal for brakes, and heard them clap on and heard the release again. Some portion of the train had been made up a good deal earlier than the front portion—about an hour earlier. The coupling had been finished before the brake-test. I presume it had been finished or the guard would not have signalled for the brake-test. I infer the couplings were completed because I saw the guard give the brake signals. If the near portion of the train had been standing some time disconnected from the engine the air would have leaked out, and possibly the reservoirs would be empty. If that was so the coupling of the hose made by me would cause a reduction which would show on the engine, but I do not think the brakes would thus be applied to rear part of train. I travelled in the rear van. I was on my way there when I saw the test of the brakes. I had just come from front van. I saw Mr. Harris standing by the rear van, and I saw Porter Tyer standing near him. I do not remember seeing Frank Skeen. There were four of us travelling in the van. I did not notice the pressure in the gauge. The train stopped at Ngatira. I did not get out of van. I heard the brakes on the van working there. I heard the rubbing on the wheel and then the release after. I only noticed it once. I never went out of van—even to the platform. Guard Lowe went out. I *heard* the grating, but did not *feel* the brakes go on. I cannot remember now if I felt them working. I probably did so. I have no idea how long the train stopped at Ngatira. I suppose six or seven minutes—just long enough to water two engines—about seven minutes. I looked out of the window, but all the persons I saw were strangers. A man I thought was a platelayer came to the van but not into it. I saw some children there. It was a dark night, and the station was not lighted except by the lights from the carriage. When we started from Ngatira there were in the van Guard Lowe, Porter Tyer, Kingdon, and myself. I cannot say if any of the cocks were interfered with while train was standing at Ngatira. When the train proceeded I was sitting next the brake and Tyer next to me, and on the other side the guard was next the desk and Kingdon next to him. When we stopped on incline I remember the brakes being applied. I say so because I think I heard the rubbing of the brake-blocks on the van. I said before Coroner, "I remember the brakes being applied very quietly when we were on the hill." That is correct. I was then talking to Guard Lowe. When I gave the evidence I was sure of it, and that evidence was correct. I never heard the brakes released, nor any further application of the brakes. I heard the brake applied as we stopped. The grating on wheel would bring the train to a stop. No one left the van. Guard Lowe went to the side door twice. That door was open all the time—the right-hand side—that next to Ngatira Station. It was about two-thirds open. He looked out and came back. He said nothing at all. I did not say anything at Coroner's inquest about Lowe going to side door.

No one spoke about the position we were in. After we had been stationary a little while the train commenced to move back. It might be ten minutes or it might be longer between the time the train stopped and when it commenced to move backwards. When the train commenced to move back I started to put the brake on. There was no bump, and I did not hear any click of the carriages. I did not put the brake on because Guard Lowe told me it was all right, "Never mind the brake." Shortly after that I heard three whistles repeated three times. The train was then moving slowly—four or five miles an hour. I put the van-brake on then, and Lowe went through and put the car-brake on, and when he came back he pulled the Westinghouse tap down. The gauge was empty. There was no air showing at all. When he pulled the cock down there was no sound of air from it. As Lowe was rushing through to the carriage I looked at the gauge. The hand was right down to zero. I had looked at it some minutes previously and it was then showing about 30 lb. That was after we had stopped. Lowe was then in the van. After we stopped and before the train began to move back I looked at gauge, and it showed about 30 lb. Four or five minutes later I looked again and saw the gauge was down to zero. When we started to move there was no air shown in gauge. Lowe would certainly have put the Westinghouse brake on, and I think he noticed the gauge showed no air. Before the train started to go back I said to Lowe, "She has not got much air, Jack." He did not say anything. A few minutes after that we started to go back and we put on the brakes. Lowe might have noticed the gauge was at zero but I do not know whether he did or not. When he pulled the handle down he looked at me but said nothing. Kingdon helped me to put the brake on. When engine whistled we were only travelling about four or five miles an hour. I did not know the engine was uncoupled. I thought we were coming back to get a better place to start up the hill again. When the train was going about four or five miles an hour it would have been possible to get out and put hand-brakes on. I did not know engines were uncoupled from train until I was pulled out from wreckage. The long stoppage on incline did not cause any remark between us. I did not know where we were, but thought we were further up at the tanks. No one remarked that they thought we were at the tanks. I have talked over the accident with Taylor and others. Beyond the engines being uncoupled nothing was said. I said I did not know the engines were uncoupled. I was never told by either driver they had made a certain reduction on applying the brakes. I had this conversation before the inquest. There was talk of the engines being uncoupled, and I said I did not know that until I was pulled out of the wreckage. Nothing more was said. I never asked any question as to the brakes. I was present during the time Porter Tyer's evidence was given at inquest. I heard the brakes being applied very quietly when we stopped on the hill. I said so before Coroner and believe so still. I never heard them released. I never heard pipes being clapped or recharged. I never heard a second application of brakes. I have done a fair amount of travelling in trains. I never heard before of engines being uncoupled from train without warning the guard. I did not talk about that with the others. I only discussed my troubles with the others. All I said to the engine-driver Taylor was that I did not know the engines were uncoupled. He made no reply, and that was all that was said. When we started to go back I never heard any grinding of the brakes. Everything seemed smooth. I feel positive there were no brakes on when we started to go back until we put the screw brakes on. That produced is the evidence I gave before the Coroner (pages 84 to 92, inclusive), and the evidence I have now given is substantially the same.

Baume: The train ran smoothly. If there had been brakes I would have heard them, but I do not mean if there had been brakes in front part of train. I have no idea. I only know there was no Westinghouse brake on the van. I was severely injured at the accident, and was suffering when I gave evidence at inquest. I was certainly very weak. This is the first time I have been allowed out of hospital. I was much weaker than I am to-day. When on the incline I believed it was the Westinghouse brake went on. I am not certain now. In any case it was a very slight application and I heard no release. There was certainly no Westinghouse on when we started to go back. It is quite possible that I may have been mistaken as to the Westinghouse going on when we stopped. The 35 lb. I saw on the gauge dropped very quickly—in a second or two. A quick reduction like that puts on the brake, but apparently it did not put on the brake. We moved off slowly and gathered speed rapidly. It would take three men to put the hand-brakes down on twenty-two ordinary vehicles about six to seven minutes, but if the brakes were working freely it could be done in about five minutes. That is a good average time. It is not like putting brakes on a corridor train. After train started we might have put three or four hand-brakes on, but no more, before it became dangerous. Before the engine was connected at Putaruru the train might have been empty of air. As soon as the engine was connected the train would be charged as the pump was working. The sound of application of brakes I heard at Putaruru was behind be and in front of me. I have sometimes been responsible for brake-test. If it is working on the van I would be satisfied. I would be satisfied by actually seeing the brakes clap on, by night as well as by day. I do not judge by the sound, but by seeing. Before giving the signal for brake-test I look at gauge in van to see if brakes could be tested. If there is not sufficient air in gauge I know the brakes will not go on, only perhaps a little. When the blocks go on the wheels I cannot tell with what pressure they are put on. I can tell if they go on hard.

His
JAMES THOMAS X DWYER.
mark.

Witness—CHARLES F. REEHAL.

Taken and sworn at Auckland, this 3rd day of September, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, HERBERT BUXTON, being sworn, saith:—

I am Chief Traffic Manager for New Zealand Government Railways. I think I can give no information on the subject. The reissue of the Appendix is in hand. Those connected with train-

service are entitled to be supplied with a copy. The rules have been already revised and printed, and are available to those who should get them. If the stock of the Appendix has run out the reason is because it is about to be reprinted. A copy could be borrowed from a superior officer if an engine-driver wanted one.

Baume: I have heard Mr. Beattie's evidence and quite agree with it.

Court: The regulations in New Zealand as to brake-test are adopted from those in force in other countries. I do not agree that the brake-test is necessary before a train leaves Ngatira before the train proceeds up the incline. If there is any possibility of the brakes being tampered with there a brake-test then would be necessary, but the Department has had no experience of such tampering. We have a case of such tampering now. Apart from that the brake is perfectly reliable and not easily put out of gear. There is no objection to making the brake-test, but the experience of the thousands who use the brake is that such a test is not necessary. If the brake was tested at every station between Auckland and Rotorua it would add approximately two hours to the time occupied on the journey. I say there is no necessity to test the brake every time you start up an incline. Supposing a train properly examined leaves Auckland for Rotorua and were not broken on the way, then there is no necessity for a further brake-test after leaving Auckland. Of course, I am not a brake expert. The interference with the brake could be discovered by the guard by the indication on the gauge. The brake-test shows the brake is in operation throughout the train. I do not suggest the question as to the brake-test at intermediate stations is not worth consideration. Since the evidence we have heard has been given the matter will be carefully considered.

Prendergast: Every time the brake is used by the driver on the journey is a practical test of the brake.

H. BUXTON.

Taken and sworn at Auckland, this 3rd day of September, 1907, before me—CHAS. C. KETTLE, D.J.

This deponent, AUGUSTUS VAN ZANDT MACDONALD, recalled, saith:—

I was present at inquest at Rotorua, and some question came up as to page 6 of Appendix. The question of Appendix being obsolete was brought up by a juror, and also by the police. I obtained permission from our counsel from my place at the table to speak. I stated that the Appendix rule having been in force before the advent of the Westinghouse brake will be taken as a hand-brake rule, but it was still in force; that it was in use in those sections not fitted with the Westinghouse brake—Nelson, Picton, Greymouth, Westport, Whangarei, and also our own ballast-train; that the statement made the previous night by Mr. Harris, Stationmaster at Putaruru, as to the rules being taken together, was correct—that is, reading the rules and Appendix together; that I knew on good authority that the Appendix to the Instructions—at all events, our portion of it—was in the printer's hands. That was what I said. There was no question of putting down brakes. It was merely the question of calling up the guard. We took it that the men would put the Westinghouse brake in lieu of calling up the guard.

A. V. MACDONALD.

Taken and sworn at Auckland, this 3rd day of September, 1907, before me—CHAS. C. KETTLE, D.J.

Further exhibits put in: No. 41—Table of Heights, Distances, &c. No. 43—Copy letter 11th April, 1905, General Manager, New Zealand Railways, to Secretary, Amalgamated Society of Railway Servants, Wellington.

At conclusion of taking the evidence it was arranged that Mr. Prendergast and Mr. Baume should each address the Court.

Mr. Baume intimated, on resuming at 2.15 p.m., that he had no objection to the evidence of W. A. McCommons (pages 16 to 26, inclusive, and page 34), and of Abraham Purser (pages 27 to 33, inclusive), taken at Coroner's inquest, being admitted as evidence on this inquiry.

It was admitted by all parties that Drivers Cooper has done 111 days' driving on various parts of line in this district, but was only once before the 3rd August last on the grade in question.

It was further admitted by all parties that Acting-driver Taylor had done 130 days' driving, mostly on Taumarunui line, and including about fourteen days' driving and fourteen days' firing on the Rotorua line, and that on the 22nd August last (1907) Cooper was promoted from acting-driver to driver.

Mr. Prendergast and Mr. Baume having addressed the Court, His Honour declared the inquiry closed, and stated that in due time his report would be forwarded to the Right Hon. the Minister for Railways.

CHAS. C. KETTLE, D.J.

EXHIBITS.

EXHIBIT No. 8.

N.Z.R.—AUCKLAND SECTION.

1. I HEREBY certify that I have been shown how to work the Westinghouse air-brake, and I am quite conversant with the proper use of it on engines or engines and tenders.

Name: T. M. Cooper.
Grade: Fireman.
Location: Frankton Junction.
Date: 14/3/03.

G.B.—16/3/03. A. V. MACDONALD.

N.Z.R.—AUCKLAND SECTION.

2. I hereby certify that I have been shown how to work the Westinghouse air-brake, and I am quite conversant with the proper use of it on engines and trains.

Name: T. M. Cooper.
Grade: Fireman.
Location: Frankton Junction.
Date: 14/3/03.

G.B.—16/3/03. A. V. MACDONALD.

EXHIBIT No. 9.

AUCKLAND SECTION.

1. THIS is to certify that I am conversant with and have been shown the proper use of Westinghouse brake equipped on engines and tenders.

Name.	Designation.	Location.	If conversant.	If shown.	Date.
J. L. Taylor ...	Fireman and Acting-engineman	Taumarunui	Yes	Yes	15/5/06.

AUCKLAND SECTION.

2. This is to certify that I am conversant with and have been shown the proper use of Westinghouse brake equipped on engines and trains.

Name.	Designation.	Location.	If conversant.	If shown.	Date.
J. L. Taylor ...	Fireman and Acting-engineman	Taumarunui	Yes	Yes	15/5/06.

GEO. BOWLES,
R.S. F'man.
9/6/06.

EXHIBIT No. 10.

To Stationmaster, Putaruru, Rotorua. 3rd August, 1907.

TO-DAY Saturday service of "X" special will run from Putaruru to Mamaku attached to No. eleven train. No. eleven to be held at Putaruru till seven p.m. Instruct staff. Repeat and say if understood.

T. W. WAITE.

EXHIBIT No. 11.

NEW ZEALAND RAILWAYS.

Locomotive Department, Putaruru Station, 5th August, 1907.

Report of Engineman T. Cooper, No. 11 Train, 3rd August, 1907, from Putaruru to Mamaku.

SIR,—

I regret to have to report the wreck of above train. When about two miles and a half south Ngatira my engine suddenly went off her beat, and leading engine applied the brakes and stopped the train. I got down and examined engine outside, and then crawled underneath and examined eccentrics and links: found them all right. Engineman Taylor, who also heard engine

go off her beat, could find nothing wrong with engine. In order to locate defect we decided to cut off train and move engine slowly ahead. Before doing so, Engineman Taylor released Westinghouse brake, and held train until such time as he had pumped up and fully recharged train, then applied brakes again. He then cut off behind my engine, and he went along and dropped three hand-brakes on trucks while I screwed on van-brake next engine. After cutting off we waited three or four minutes to see that brakes were holding quite secure; then, seeing train did not move, we went slow ahead for about four or five yards. Train had not moved then. We then steamed slowly ahead for about seventy yards, and when looking around seen train moving. We at once moved in pursuit, but could not catch it. I cannot understand why train moved away with Westinghouse brake on, besides hand-brakes we put on. After we stopped the train I was underneath engine, and it did not move on the first application of brakes, and no hand-brake was on then.

I remain, &c.,
T. M. Cooper, Acting-engineman,
Engine No. 102, Class T.

The Running-shed Foreman.

EXHIBIT No. 12.

Vehicle.	Condition of Wheels.	Any Sign of Wheels skidding.	Condition of Brake-gear.	General Remarks.
H 346	Good	No	Damaged.	
F 165*	"	"	"	
H 304	"	"	"	
F 190*	"	"	"	
LA 7350	"	"	"	
L 7235	"	"	Good	This wagon ran down on its own wheels on special from Putururu to Auckland empty. The brake-gear was in service during the run down, and worked satisfactorily.
R 66	"	"	"	This wagon ran down on its own wheels on special from Putururu to Auckland, and was loaded with about 5 tons of broken gear. The brake-gear was in service during the run down, and worked satisfactorily.
A 452†	"	"	Damaged.	
L 4956	"	"	"	
K 606	"	"	"	
L 3557	"	"	"	
H 343	"	"	"	
L 3452	"	"	"	
L 7778	"	"	"	
L 3532	"	"	"	
L 7764	"	"	"	
L 3497	"	"	"	
L 3533	"	"	"	
H 257	"	"	"	
L 3495	"	"	"	
LA 7134	"	"	"	
LA 7004	"	"	"	

* Van. † Car.

16/8/07.

G. E. Richardson,
W.S. Manager.
16/8/07.

EXHIBIT No. 13.

No. 68–62–07–152.

New Zealand Railways, Auckland Section, 9th August, 1907.

In *re* attached papers.—Memorandum for Locomotive Engineer, Railways, Newmarket.

Disaster to No. 11 Train, on 3rd instant, at 42-mile Peg, Rotorua Branch.

I attach hereto reports from engineman and fireman in connection with above.

The engine, when leaving Frankton, was in perfect order in every detail. (Acting-engineman Cooper's wire *re* engine attached.)

Valves were examined, and found in good order.

It is quite evident that there were not enough hand-brakes put down to hold the train on this grade before the engines were uncoupled from the train.

Geo. Bowles,
Running-shed Foreman.

EXHIBIT No. 14.

New Zealand Railways, Locomotive Department, Putaruru Station,
4th August, 1907.

Report of Engineman E. M. Leydon, of No. W Train, Goods, from Frankton to Putaruru.

SIR,—

With regard to your memo. of equal date, I beg to report that engine T 102 was in good order when taken over by Engineman Cooper.

Yours, &c.,
E. M. LEYDON, Engineman,
Engine No. 102, Class T.

The Running-shed Foreman.

EXHIBIT No. 15.

New Zealand Railways, Locomotive Department, Putaruru Station,
5th August, 1907.

SIR,—

I beg to report the wreck of No. 11 and X special trains about two miles and a half below Ngatira. We left Putaruru with a full load, and all went well until we reached the 48-mile post, and there engine No. 102 missed her beats, and was at once stopped and examined by Engineman Cooper and Taylor, and they could not find anything wrong, so it was agreed to uncouple the train, and Engineman Taylor applied the brakes before uncoupling, and after uncoupling there was hand-brakes dropped by Engineman Taylor, and we stood some time to see if the train held, which she did until we got about 50 yards away and it was seen to be running down the hill, and Engineman Cooper gave three loud whistles and then several more to draw the attention of the guard and we started to catch the train, but it was impossible owing to the speed of the train. When we seen it was no use trying to catch the train, so we slowed down and followed on slowly until about two miles and a half below Ngatira where the wreck occurred Everything was done by Engineman Cooper and Taylor as was necessary.

I am, &c.,
C. V. KERR.

The Running-shed Foreman.

EXHIBIT No. 16.

New Zealand Railways, Locomotive Department, Rotorua Station,
4th August, 1907.

Report of Engineman J. L. Taylor, of No. 11 Train, Saturday, 3rd August, 1907, from Morrinsville to Rotorua.

SIR,—

I regret to have to report the wreck of the above train about two miles and a half below Ngatira. We left Putaruru with a double load and two engines, and all went well till we reached the 48-mile peg. At about this place Engineman Cooper's engine went off her beat, and we stopped to ascertain the cause. I made a big reduction in the train-pipe pressure, and Engineman Cooper crawled under his engine to examine the link-motion. He was under there about ten minutes. We then decided to cut the engines off and move them slowly ahead, the better to examine them. Before cutting off I pumped the train up again and gave plenty of time for the train to thoroughly recharge, and made an application of about 35 lb. or 40 lb.; in addition put down three brakes while Cooper screwed the brakes hard on the van next his engine We eased up carefully, and saw that the train remained perfectly motionless, and after a few minutes moved slowly ahead for 70 or 80 yards. On starting to return to our train we saw it disappearing round a curve and at once started in pursuit, Engineman Cooper whistling repeatedly for brakes, but could not catch it. I am at a loss to understand how the train got away. The Westinghouse brake was fully applied, with the above-mentioned hand-brakes besides. It may be the train was not coupled throughout, but we tried the brakes before leaving Putaruru.

Yours, &c.,
J. L. TAYLOR, Acting-engineman,
Engine No. 84, Class J.

The Running-shed Foreman.

EXHIBIT No. 17.

New Zealand Railways, Locomotive Department, Rotorua Station,
5th August, 1907.

Report of Fireman H. Pee, of No. 11 Train, Saturday, 3rd August, 1907, from Morrinsville to Rotorua.

SIR,—

I have to report the wreck of No. 11 train some two miles below Ngatira. We stopped on the bank to examine Cooper's engine, and the driver put the Westinghouse brake hard on, while Cooper went beneath his engine to examine her. He was there some time. Before we unhooked, Taylor put steam against the weight of the train and pumped the train up again Then he made a big application of the brakes. Care was then taken to see that the train remained motionless, and the engines were then moved slowly ahead. After going about 80 yards we started to return, and to our dismay saw the train running away. We could not catch it, and it was wrecked below Ngatira. I heard the driver say he had put down some hand-brakes.

Yours, &c.,
H. PEE, Fireman.

The Running-shed Foreman.

EXHIBIT No. 18.

New Zealand Railways, Running-shed Foreman's Office, Auckland,
6th March, 1906.

Notice to Enginemen.

THERE is nothing objectionable in firemen uncoupling and coupling engines to trains at watering-places when a porter, &c., is not available, providing the tanks are not foul of a cross-over road or outside any signals. Time can thus be saved, as the porter can be used for station-work. Please note.

GEO. BOWLES,
Running-shed Foreman.

EXHIBIT No. 20.

(Private and confidential.)

One-tree Hill, 26/8/07.

SIR,—

Being an ex railway servant of some seven years' standing in the Caledonian Railway, Scotland, when I went through all the different grades of the service, or most of the grades—viz., shunter, brakesman, both mineral and goods, passenger guard, detective, and while on the detective staff I used to relieve the saloon attendants, Glasgow and London, at odd times. I left the railway of my own accord, and hold their reference to that effect. On account of the above I have taken a good deal of interest in the recent runaway-train accident on the Rotorua line. I have refrained from making any remarks regarding the accident in the newspapers as I do not consider any good could come of it; but still, as a man having a thorough practical knowledge of the working of railway rolling-stock, I would like to make a few remarks which, in my opinion, might enable you, as conductor of the inquiry at present sitting regarding the accident, to get at a point which seems to me might have averted the accident even after the uncoupled train had got considerable impetus on the downhill grade. To make myself clear, I will explain to you a method that was in vogue during my service on the railway, and, to the best of my knowledge and belief, still prevails. I refer to a method of assisting one or two of the London-to-the-North express trains up Beattock Summit. This is a steep gradient of some seven miles commencing from near to Beattock Station. Just outside of Beattock Station there is a small siding, where a pilot engine takes up its position prior to the passing of these express trains. The points from this siding open out on to the up main line, upon which the expresses rush past at—I can say with all confidence at the rate of sixty miles an hour. The moment the express is past the siding where the pilot engine is standing the points are opened, and this pilot engine rushes after the express train just past, and, when it catches up to it, the fireman, who is standing on the front of the pilot engine, couples on to the rear of the express train, and the pilot engine then commences to assist the express train to the top of the Summit by propelling from the rear. When the Summit is reached the fireman uncouples the pilot engine from the rear of the train, and then the pilot engine crosses by means of a through shunt on to the down main line back to Beattock Station. My idea in giving this illustration is merely to show that there was a possible chance of the runaway train having been caught if the driver of the engine next to the train had used his utmost endeavours to do so. It was stated at the Coroner's inquest that the coupling of the vehicle next to the engine, and which works automatically, was left up in position, so that had the engine come up against it it would have coupled on to the engine of its own accord. If the fireman was then unable to couple up the Westinghouse brake on to the train the brakes of the engines could have been applied and the engine reversed, which would have considerably lessened the speed of the runaway train, and, even if it had not stopped it, the speed by being lessened would have enabled the train to safely negotiate the curve instead of jumping the rails as it did. This may seem to be rather rough on the driver. Still, I am strongly of opinion that he could have caught the runaway train, and the only excuse I can see for him is that he was afraid to open up his engine to enable it to gain speed enough to catch up to the runaway train, being afraid he would bump into it; but the fact of the train running at a high rate of speed, and the spring buffers between each vehicle, would have prevented any bump or damage being done. If an engine can couple on to the rear of an express train going at the rate of sixty miles an hour, surely it could have been done in this case, as no suggestion has yet been made that the runaway train attained that rate of speed. Another thing I cannot understand is this: Had the Westinghouse brake been properly applied to the whole train prior to the engine being uncoupled, it was impossible for the train to move an inch, because to release the Westinghouse brake without the engine you have to pull a wire underneath each vehicle which is connected to the reservoir of each vehicle. This wire is attached to a valve (I am speaking of fifteen years ago, when I passed my examination on the Westinghouse brake prior to my promotion as a passenger guard), which when opened releases the brakes. This has to be done individually to each vehicle before the brake can be released throughout the whole train. To release the Westinghouse brake at once throughout the whole train requires the engine to be attached, as that can be done only by the engine. Again, on the other hand, say that the Westinghouse brake was not applied when the engines were uncoupled, the guard of the train can operate the Westinghouse brake from his van in so far that he could apply the brake to the whole train at once, and thus bring it to a stop, but could not release it again except in the manner I have already indicated. Again, say that the Westinghouse brake was applied prior to the engines being uncoupled, it was impossible for the brakes to release themselves—that is to say, if all the mechanism was in proper working-order. Now, any one conversant with the working of a train, or shunting-work of any description, would naturally infer that the Westinghouse brake was not applied prior to the engines being uncoupled, from the very fact that the driver of the engine, when he saw the train moving, whistled to the guard to apply the brake by giving the usual whistle which is meant to

apply brakes. The guard in the rear brake van was bound to know if the brakes (Westinghouse) had been applied, because in the guard's van is an indicator which, when the train is connected up, should show exactly the same as a similar indicator on the engine. When the Westinghouse brake is applied the needle of this indicator is lowered, and when the brakes are released again it rises to the same pressure as it formerly stood at, which should be the same as that shown on the engine. It is upon account of the very strong feeling I have regarding this accident that has prompted me to write as I have done giving my practical ideas regarding the accident in order that you, as conductor of the inquiry, may have all the assistance possible to enable you to frame such questions as will enable you to get at the real cause of the train getting away.

Yours, &c.,

District Judge Kettle. WM. BANNERMAN.

EXHIBIT No. 21.

Manager. Auckland Railway, 26th August, 1907.

AFTER departure No. eleven on third August nothing remained here for south.

HARRIS.

EXHIBIT No. 22.

SIR,— 32 Wakefield Street, 28th August, 1907.

Reading to-night that you were looking for Westinghouse brake testimony, I have penned the following: The Westinghouse brake is not a continuous brake. By that I mean, if a train was running down a long incline and the brake was put on at the top, it would either partly or wholly give out before the train reached the bottom if not recharged. I have known of instances where an engine by itself, being held by the brake, fizzled out and left the brake off. One of these instances occurred in Oamaru where an engine was placed on a turntable to be turned, and before that was accomplished the brake had released and the engine ran off the table. I cannot give dates, but I could give you enough information to lead you to the facts.

I remain, &c.,

Mr. Kettle. F. SYMONDS, Jun.

SIR,—

Reading that you were wanting Westinghouse brake experts. I have delivered this letter personally, and if you would grant me a few moments' interview you might be able to judge if I would be of any use to you. I am unused to public inquiries, and if you would inform me what course to take, I remain, &c.,

Mr. Kettle. F. SYMONDS, Jun.

P.S.—I hope I am not breaking any Court rules, as this is not a criminal affair.—F. S., jun.

EXHIBIT No. 23.

CAR AND WAGON INSPECTOR'S NOTES.

R 66. One truss-rod braket broken, one drawbar bent, one truss-screw broken; Westinghouse combined set good.

L 7235. Drawbars both bent, one side bulged in, the headstock corner broken off (wood); Westinghouse combined set good.

L 4956. Drawbar and side chains broken at one end, side rail broken on one side, end and pillars broken; wheels and axle-boxes good (new wheels).

K 606 (rebuilt). Body completely broken off, both drawbars bent, side rail broken.

A 452. Body broken, underframe broken; combined set all right; brakes badly damaged, will have to be rebuilt.

LA 7350. Drawbar broken off, other end bent; iron blocks bent at one end, strained; axle-box broken; underframe good; one headstock broken.

H 245. One drawbar broken off, two axle-boxes broken, body completely broken; new floor and side rails.

L 3557 (rebuilt). Drawbar broken at one end, hand-brake lever broken, body and side rail broken; combined set good.

L 3533. Drawbars bent, hand-brake broken, body broken badly, W.H. damaged, cylinder broken.

L 3497 (rebuilt). Westinghouse gear broken, drawbar bent both ends, body twisted.

H 257 (rebuilt). One axle-box and iron block broken, one drawbar bent, body broken off; combined set good.

L 3495 (rebuilt). One drawbar broken, body broken, underframe good, combined set good, hand-brake broken, axle-box broken, angle tap up at one end.

LA 7004. One axle-box broken, drawbar bent, one side badly bulged, wheels good.

LA 7134. Two axle-boxes broken, drawbars bent, hole knocked in one end; wheels good, very little damaged.

L 7764. One drawbar bent, one broken; three axle-boxes broken, hand-brake gear broken, wheels good, body twisted.

L 3452. Complete wreck.

L 7778. Drawbars broken, one axle iron plate bent, good wheels, body good, push-rod broken off.

L 3532. Drawgear bent, body twisted, brake ironwork damaged.

H 304. Westinghouse angle cocks and train-pipe damaged, body good, wheels good, door damaged.
F 165. End of body broken, underframe damaged at one end, guard's compartment smashed, bogies all right, brake-gear all right, running-gear good, one axle-bar damaged.
H 346. Body completely broken, drawgear and running-gear good, wheels good.
F 190 (rebuilt). Body completely broken, brake-gear broken, underframe strained, bogies damaged, draw and brake gear smashed.
L 3497. Brakes on slightly. Westinghouse combined set broken, two axle-boxes broken, hand-brake gear broken and twisted, one end of wagon completely broken, drawgear badly bent, train-pipe good, cross-bars pull-rod bent, wheels good, one angle cock good.
L 3533. Westinghouse brake-cylinder broken, hand-brake broken, W.H. pull-rods bent, cross-bars good, end and side of wagon broken, hand-brake broken, train-pipe broken, drawbars bent, wheels good, one angle cock good.
L 3495. Combined set good, train-pipe broken, angle cocks good, hand-brake good, cross-bars good, pull-rods bent, body and floor broken, wheels good.
H 257 (rebuilt). Body broken, combined set good, cross-bars good, pull-rod bent, hornplate broken, axle-box broken, side chain broken, drawbar bent, body completely broken, hand-brake good, wheels good, body damaged, wheels and brake-gear apparently right.
L 7778. Combined set good, cross-bars and gear twisted, side chain broken, drawbar broken, axle-guards bent, train-pipe broken.
La 7004. Body twisted, headstock broken, axle-box broken, combined set good, drawgear twisted, hand-brake push-rod bent, train-pipe broken, one angle cock broken, wheels good, brakes on lightly.
La 7134. Combined set good, axle bent, train-pipe good, drawgear twisted, body twisted, wheels good, cross-bars good.
L 7764. Combined set good, train-pipe good, drawgear twisted, body twisted, angle cock good, headstock broken.
La 7134. Underframe apparently good, two axle-boxes broken, drawgear broken, end of body damaged.
La 7350. Horn plates one end missing, and axle-boxes; brake-gear damaged, underframe damaged, body strained.
L 7764. Underframe good, axle-boxes broken, W.H. brake fairly good, body twisted.
R 66. Drawgear damaged; can run on its own wheels.
L 7235. Bulged on one side, headstock damaged; can run on own wheels

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EXHIBIT No. 24.

Newmarket, 17th August, 1907.

Chief Mechanical Engineer, Railways, Wellington.

Accident on Arahiwi Grade, 3/8/1907.

As wired to you on Wednesday evening, 14th, from Rotorua, the jury returned a verdict as follows, in full: "That Guard John Lowe came by his death as the result of injuries received through the accident to the Rotorua goods-train on the 3rd August, 1907, owing to the vehicles receding from the vicinity of the 48th-mile peg, where the engines detached through the partial failure of the second engine. The evidence is too conflicting to justify the jury arriving at a decision as to why the vehicles receded."

I attach the engine-driver's and foreman's reports, and typed copies of the evidence, which covered in ordinary writing 149 pages of foolscap.

The engines were J 84, high pressure, leading, driver J. L. Taylor, fireman H. Pee; T 102, trailing, driver T. M. Cooper, fireman C. V. Kerr. In evidence it is given that brakes were tested at Putaruru, and seem to be released by the Stationmaster.

A service stop was made at Ngatira, and water taken; nothing put off; and, again brakes being released, air must have been in the main pipe to full capacity. A service stop on the bank is acknowledged, due to T 102 getting off her beat. This deceived the men, and they stopped to ascertain the cause and state, as given at length in the evidence. It is certain to my mind that the air-brakes were not on when the train began to recede, and that the train-pipe must have been charged and valves released as stated; but I consider the Westinghouse cock on the van was shut before the emergency application was made, and therefore it only got on to the engines, and the train went back, only holding on by the hand-brakes, four, stated to have been put down.

These vehicles show no signs of skidding. The trailing van and car show that hand-brakes had been on. All the vehicles, twenty-two in number, being a 30 ft. van leading, a 47½ ft. van trailing, and a 44 ft. 4 in. compartment car, also show wheels in good order. All but the one vehicle had had triples examined within the prescribed time, and one only fifteen months.

The wagons were 4 H, 1 K, 10 L, 3 La, 1 R—total, 19; 2 vans, 1 car—total, 22. The weight of train, 226 tons 4 cwt. 2 qr.

I left the vehicles alone until the jury arrived on the Monday, forty-three hours after. They (the jury) examined the vehicles, finding several with blocks still on, apart from damaged ones. These men, the Coroner, one or two jurors, and the proprietor of the *Times* paper are prepared to give evidence on this if called upon.

The jury desiring to see brakes applied, &c., at Rotorua, I introduced Mr. Robertson, the Westinghouse Brake Company's Inspector, to the Coroner and the foreman of the jury, stating that I placed the express train at Rotorua at his disposal for a demonstration. This was carried out, commencing some three-quarters of an hour before the departure of the train.

The police tried to bring in against the drivers neglect of rule in Appendix, page 6, and the jury recalled Taylor on Rule 269A. For the one, it was looked upon as a hand-brake rule; the other (269A) as one if there had been an accident.

The Inspector of Police had become possessed of one of our "Appendix to Working Timetable" books.

I have notified District Traffic Manager, Auckland, for traffic witnesses; District Engineer, Auckland, for a plan and section; Running-shed Foreman and Car and Wagon Inspector, Auckland, for all our men, including Morrinsville train-examiner, and told Workshops Manager, Newmarket, to be ready if required to support Car Inspector as to state of stock if necessary.

Judge Kettle has asked District Traffic Manager, Auckland, for a plan, and also plan showing the train. This the District Traffic Manager gave to the District Engineer, Auckland. He, the Judge, also asked for copy of our Westinghouse Brake Rules as supplied to the men. This I take to him this evening.

A. V. MACDONALD,
Locomotive Engineer.

EXHIBIT No. 25.

Auckland, 17th August, 1907.

Locomotive Engineer, Railways, Newmarket.

No. 11 and X Special Trains running away at 48-mile Peg on 3/8/07.

I HAVE to report on arriving at the scene of the accident at 41¾-mile peg on the Rotorua line where the vehicles left the track and went over the bank. I examined the vehicles to see if the brakes had been hard-set and if the wheels had been skidded. I did not find any of the wheels showing signs of skidding, and there was only one vehicle that the hand-brake was hard on—viz., the carriage No. 452. The hand-brake gear in the long brake-van which the guard was in was broken. I also examined the Westinghouse-brake gear: the pistons were all back in their normal position; some of the brake-blocks were against the wheels, but that is attributable to the damaged gear. I also examined the triple-cock handles, and each one was in working-position. I also examined the ends of vehicles, and found the angle cock closed on one wagon, L 3497; the tap-handle did not appear to be knocked, showing that it had been closed during the collision. Wagon L 7778 also had one tap closed. This wagon was standing on end, and I could not examine it until it was lowered to the ground; I therefore cannot say whether this tap was open or closed during the running of the train. The handles on the taps, and some of the angle cocks and bends, were completely broken off some of the vehicles.

R. SIMPSON,
Car and Wagon Inspector.

EXHIBIT No. 26.

DEAR SIR,— Wellington, 26th April, 1905.

The General Manager advises as follows:—

"With reference to regulation which provides that guards are to see that all brakes on a train are in proper working-order, I have to state that the instruction regarding the testing of air-brakes provides that the guard during his run is, after every occasion on which the engine or a vehicle is detached or attached, to see that the brake applies and releases on every brake vehicle on the train. But he can satisfy himself on this point without on every occasion making a detailed examination of every vehicle remaining on the train."

I may state, however, that the question of altering the wording of the instruction is now under consideration.

W. J. EDWARDS,
General Secretary.

The Secretary, Canterbury Branch, A.S.R.S.

EXHIBIT No. 35.

APPROXIMATE TRAIN-MILEAGE RUN SINCE WESTINGHOUSE AIR-BRAKE WAS BROUGHT INTO USE ON NEW ZEALAND GOVERNMENT RAILWAYS.

Section.	When Brake brought into Use.	Train-mileage, Approximate.	Particulars of Failures to stop when required.
Auckland	Express trains, June, 1901; in general use, April, 1903	4,249,000	Nil.
Wellington – Napier – New Plymouth	In general use, November, 1901 ...	10,920,000	Train overran Tariki Station platform through cock in train-pipe between third and fourth vehicles not being opened.
Hurunui–Bluff ...	Express trains, July, 1902; in general use, July, 1905	7,502,000	Nil.
Total ...	... ...	22,671,000	

Failure through cock being closed, 1.

EXHIBIT No. 36.

PARTICULARS OF WESTINGHOUSE AIR-BRAKE FAILURES TAKEN FROM BOARD OF TRADE RETURNS.

Return for Six Months ending	Train-miles run.	Failure or Partial Failure to act when required in Case of Accident to a Train, or a Collision between Trains being imminent.	Failure or Partial Failure to act under Ordinary Circumstances to stop a train when required.
Dec. 31, 1898 ...	33,538,669¾	Nil.	Train overran a platform by nine carriage-lengths: cause, cock not being opened between vehicles.
June 30, 1899 ...	30,648,113½	"	Nil.
Dec. 31, 1899 ...	34,139,762¼	"	"
Dec. 31, 1900 ...	31,607,978¾	"	Train overran platform at two stations: cause, donkey-pump stopped through want of lubrication. Train overran platform by three carriage-lengths: cause, cock shut between third and fourth vehicles. Train overran a platform by three carriage-lengths: cause, cock between engine and tender closed. Train overran platform: cause, cock in train-pipe not opened. Train overran platform: cause, collar broken off air-pipe from train-pipe to combination valve of vacuum ejector of engine.
June 30, 1901 ...	30,596,337	"	Train overran a platform by length of train: cock between engine and first vehicle closed.
Dec. 31, 1901 ...	33,968,325¼	"	Train overran platform at two stations: cause, pump stopped through upper main piston-ring being broken—faulty material.
June 30, 1902 ...	30,326,627¼	"	Train overran a platform: cause, train-pipe cock on vehicle next engine not opened.
Dec. 31, 1902 ...	33,717,027¼	"	Nil.
June 30, 1903 ...	30,477,448	"	Train overran a platform owing to air-pump failing. Train overran a platform owing to air-pump failing, a screw in reversing-plate getting slack. Train overran a platform by two carriage-lengths.
Dec. 31, 1903 ...	34,400,588½	"	Train overran a starting-signal: cause, a train-line cock not opened. Train overran a platform three and a half carriage-lengths: cause, air-pump on engine failing.
Total ...	323,420,877½		

Summary of Failures.

Failure of air-pump	7
Cocks not opened	7
Failure due to connection on engine with other brake	1
Failure for which no cause is given	1
Total in five years	16

One failure in 20,213,805 miles.

EXHIBIT No. 37.

WESTINGHOUSE-BRAKE TEST MADE AT NEWMARKET on the 20th August, 1907.

Held on 1-in-40 grade. Train-pipe charged to 70 lb., and a reduction of 35 lb. made. Train consisted of 1 empty 30 ft. brake-van, 1 Class K wagon partly loaded with goods, and 3 Class L and 1 Class LA wagons loaded with coal.

Vehicle.	Piston-travel.	Pressure in Brake-cylinder at reduction.	5 mins.	10 mins.	15 mins.	20 mins.	25 mins.	30 mins.	35 mins.	40 mins.	45 mins.	50 mins.
	In.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	
F 176	6½	45	42	33	25	23	21	19	17	15	13	brake off.
K 518	4	47	42	34	25	23	22	19	17	15	13	Ditto.
L 3373	3¾	48	42	37	25	23	22	20	18	16	13	"
L 4949	3¾	52	47	42	30	26	24	22	18	16	12	"
LA 7334	3¾	45	40	37	24	22	21	19	17	14	11	"
L 3649	4	52	42	37	24	22	21	19	16	14	11	"
		35*	45	33	27	24	22	20	18	17	13	..

* Train-pipe.

NOTES.—All brakes applied. At fifty minutes after brakes applied the whole of the brakes on above vehicles came off together, and vehicles moved down-grade on to two bogie wagons placed on grade for that purpose. The brake-van was taken from workshops yard after being painted, but brake not overhauled lately. The wagons were taken out of traffic at Newmarket Station for the purpose of this test.

EXHIBIT No. 38.

PARTICULARS OF WESTINGHOUSE-BRAKE TRIALS held in New South Wales in 1891 by a Board appointed to inquire into the Efficiency of the Westinghouse Continuous Brakes for Goods-trains.

(New South Wales Parliamentary Paper, Second Session, 1891, Legislative Assembly.)

Test for Brake leaking off.

On 1-in-30 grade, engine made full application of brake, and then cut off.

Number of Minutes after Application of the Brake.	Pressure in Reservoir of Van.	Pressure in Brake-cylinder of the Van.	Remarks.
	Lb.	Lb.	
0	67	62½	Pressure in train-pipe and reservoir before application of the brake was 80 lb.
18	40	35	
32	25	25	
39½	...	...	Brake of one wagon leaked off.
42	...	..	Brakes of two wagons leaked off.
47	19	13	
50½	...	...	First four wagons moved a few inches down-grade.
62	14	4	
65	...	0	
77	11	0	
80	9	0	Gauge stuck at 9 lb.
83	...	0	Train moved down-grade to engine.

EXHIBIT No. 40.

JOHN LAMBERT TAYLOR.

Born September, 1881.

1900, April 15.—Casual junior labourer, Newmarket.
,, ,, 13.—Cleaner, Auckland.
1901, August 3.—Examined and passed for spare fireman.
1905, May 13.—Examined and passed for spare driver.

EXHIBIT No. 41.

THOMAS MAURICE COOPER.
Born April, 1879.

1896, December 21.—Cleaner, Auckland.
1900, January 19.—Examined and passed for spare fireman.
1903, April 20.—Examined and passed for spare driver.

EXHIBIT No. 42.

MEMORANDUM OF HEIGHTS, DISTANCES, ETC.

Station.	Above Sea-level.	Rises—
	Ft.	
Morrinsville	87	...
Putaruru	525	438 ft. in 37 miles.
Ngatira	935	410 ft. in 7 "
Arahiwi	1,733	798 ft. in 7 "

EXHIBIT No. 43.

New Zealand Government Railways, Head Office, Wellington,
11th April, 1905.

SIR,—

With reference to your letter of the 17th December in regard to the regulation which provides that guards are to see that all brakes on a train are in proper working-order, I have the honour to inform you that the instruction regarding the testing of air-brakes provides that the guard during his run is, after every occasion on which the engine or a vehicle is detached or attached, to see that the brake applies and releases on every braked vehicle on the train; but he can satisfy himself on this point without on every occasion making a detailed examination of every vehicle remaining on the train.

I may state, however, that the question of altering the wording of the instructions is now under consideration.

I have, &c.,
H. BUXTON,
For General Manager.

The General Secretary, Amalgamated Society of Railway Servants,
Box 488, G.P.O., Wellington.

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