

Ministry of Transport,
4, Whitehall Gardens,
London, S.W.1.

12th November, 1934.

SIR,

I have the honour to report, for the information of the Minister of Transport, in accordance with the Order of the 11th October, 1934, the result of my Inquiry into the circumstances connected with the accident which occurred about 4.50 p.m. on the 2nd October, 1934, at Barkfield Lane occupation level crossing, between Formby and Freshfield Stations, on the London Midland and Scottish electrified line between Liverpool and Southport.

The 4.32 p.m. down express train, Liverpool (Exchange) to Southport, was running between Formby and Freshfield Stations under clear signals at a speed of about 50 m.p.h. when a motor lorry started to cross the line immediately ahead; it was struck by the train and thrown to one side; the petrol tank was broken and the petrol caught fire with the result that the body was completely destroyed. I regret to state that a man who was sitting in the driving seat of the lorry was killed. The train suffered minor damage only and none of the train staff or passengers was injured.

The train consisted of five 8-wheeled bogie coaches, a composite motor third being located at each end. It weighed about 177 tons and had a total length of 308 ft. It was fitted with the vacuum brake on all wheels and its percentage of braking power was 77 per cent.

I was informed that the motor lorry was a Ford about six years old, with an articulated 2-wheel trailer, and a carrying capacity of about 2 tons. It was of about 30 h.p. and had a three speed gear box of the ordinary sliding gear type with central gear lever. It had the usual foot brake and hand brake (right hand). It was practically unladen at the time of the accident.

As a result of the collision there was minor damage to all five vehicles of the train and the front panes of glass of the motorman's cab were broken. One electrical connection near the leading end of the underframe of the leading motor coach was broken and gave rise to slight arcing, but this was extinguished promptly and without difficulty by the use of sand by the motorman.

The circuit breakers at the substations feeding both ends of the section in question opened on a dead short circuit, presumably caused by the chassis of the motor lorry touching both live and running rails, and in accordance with the instructions in force they were not reclosed until the cause and circumstances had been ascertained. The train staff applied a short circuiting bar to the rails as soon as they came to a standstill; the signalman near Formby Station saw the fire along the line, and reported it to the Power Station.

The weather at the time was fine and clear and the rail was dry.

Description.

At the site of this accident the railway line runs almost due north and south, the sea shore being about $1\frac{1}{4}$ miles to the west, and the line is dead straight from a point south of Formby Station to a point north of Freshfield Station. At the south end of the former there is a road overbridge, and at the south end of the latter a public road level crossing and foot overbridge. Approaching trains on both roads are conspicuously visible for the whole distance between these stations; they are also visible for some distance beyond the stations, but not so conspicuous owing to the presence of these overbridges, more particularly that at the Formby end.

Distances from point of collision :—

Commencement of straight line, and Eccles Crossing signal box, from which signalman saw and reported accident	1,250 yards South.
Road overbridge, Formby Station	975 ,, ,,
North end of Formby Station	825 ,, ,,
Wicks Lane Occupation Crossing	445 ,, ,,
College Occupation Crossing	395 ,, North.
Public Road Crossing and foot overbridge at south end of Freshfield Station	520 ,, ,,

The gradients concerned are negligible.

In addition to the two electrified (third rail) running tracks, there is a loop siding on the up (east) side, not electrified, extending the whole distance between Formby and Freshfield Stations. The fences and hedges on both sides are set well back from the permanent way of the running lines, the overall width between fences being about 60 ft. throughout; the gap between fence and nearest rail on the down (west) side averages about 22 ft., i.e., there is sufficient space for another loop or siding track on this side similar to the one in existence on the east side.

Barkfield level crossing is an occupation level crossing which is described, in the original conveyance of the land in 1867, as "The occupation or farm crossing or way on the level or nearly so for Agricultural purposes and passengers on foot in number 90 on the said plan". On the deposited plan item 90 is shown as a field, and in the book of reference it is described as a field. Subsequent to that date building has taken place on both sides of the line and on the east side there is now a public road leading up to and terminating at the crossing. On the west side of the crossing there is a short length of road leading west, and a narrow road, "College Avenue", leading north and south alongside the railway line serving a number of houses which face the line. None of these roads on the west side of the line are public roads and I understand they are maintained, in so far as they are maintained at all, by the frontagers. College Avenue runs from Freshfield Station crossing to a point about 200 yards south of Wicks Lane Crossing where the houses terminate. South of this it is prolonged by a footpath leading to Formby Station; it is closed at various points by locked gates to which the residents have keys.

The crossing gates on both sides of Barkfield Crossing are single hung, 10 ft. 6 ins. in width; the gate on the west side opens towards the railway, while that on the east side opens away from the line. The west gate is far enough away from the line for it to be swung into the open position without fouling the down track or trains moving thereon. No fastenings are provided to hold the gates in the open position, but spring latches of a common gate type are provided to hold them closed. In addition to the main gates there are wicket gates for pedestrians on both sides.

The crossing is of ample width, sleeper paved and in good condition. The live rails are gapped and their ends provided with protective boarding in the usual manner.

Notices are provided on each side of the crossing—Beware of the Trains, a trespass notice in the usual form, a warning against live rails, and a warning to drivers of vehicles, cattle, etc., to open the gate on the opposite side before passing through the near gate, to look in both directions, and not to stop on the crossing. There is also a notice in the usual form on the gate itself, as to a penalty of 40s. for not shutting the gate, and a reminder on the opposite side of the gate "Keep this gate shut". There is an additional notice which reads "No cabs or vehicles other than farm carts allowed over this crossing. This crossing is for agricultural purposes only".

There is an electric street lamp adjoining the gates on each side.

The train service on this line averages about 162 daily in both directions; of these only about four are expresses which do not stop at Formby and Freshfield, the train concerned in the accident being one of these.

Report.

Motorman Marsden was driving the 4.32 p.m. express, Liverpool to Southport. He has over ten years' experience of working as a motorman on this line. He stated that he had tested the vacuum brake before leaving Liverpool and that he was running through Formby Station at about 50 m.p.h., the normal speed of an express at this point. After Formby Station he was blowing his horn repeatedly as he approached the three crossings. He said that he saw a man, whom he assumed to be the driver of the lorry, cross one way in front of him, but agreed that he was not certain that it was the lorry driver, nor whether he was crossing from west to east or vice versa. He thought his train was not more than about 50 yards away when the man crossed and that the latter could not fail to be aware of the approach of the train. A moment later the lorry emerged on to the line ahead of his train at a distance which he estimated at 30 yards or less.

Marsden let go the dead man's handle, this being the quickest means of making a full brake application, and felt the brakes take hold, but did not feel an appreciable reduction of speed before the impact; the train threw the front portion of the lorry on to the up road and ran on, fortunately without derailment, until it came to a stand under the operation of the brakes in about 370 yards.

Guard Dawson, who was in the rear compartment of the train, generally confirmed Marsden's evidence as to speed and a sudden full brake application; looking back he saw the lorry on the up track behind their train. He said that the lorry was smoking and flames shot up almost at once.

The man in charge of the lorry, Richard Lane, stated that he was 21 years of age and had been driving lorries for three years; he had been driving this particular lorry for about 12 months; the engine and brakes were in good order.

On the day in question he left Liverpool about 12 noon for Southport, returning via Formby, making various deliveries of plumbers' materials, etc., some of which were heavy items. He had been to houses on the shore side of the railway occasionally before, but had usually carried his goods over by hand without taking a lorry across the line.

On this occasion he took with him from Liverpool a friend, John Hankin, an unemployed shop assistant, partly to give him a ride and partly to have his assistance in handling any heavy deliveries. Hankin had never driven the lorry or any car but was interested in driving and wanted to learn.

Lane stated that he approached the crossing from the west side and came to a standstill at the gate. He had applied the hand brake to stop, but released it after stopping, his explanation being that his brake drums were oily and tending to heat, and he wanted to give them a chance to cool down; the road approaches on the level. As far as I could judge from the wreckage of the lorry, the hand brake was not so arranged as to render it difficult for a driver to alight without releasing it.

Lane then got down to open the gates, leaving Hankin in the seat alongside the driver's seat. Questioned as to why he alighted instead of his passenger, which might be thought to be the natural and obvious procedure, saving both time and trouble, he explained that there was a dog barking at them and they had some argument about it, and as a result he got down rather than trouble his friend.

He said that he opened both gates and came back to the lorry, looking both ways but seeing no sign of a train; he then found that the engine had stopped and Hankin was sitting in the driver's seat.

The lorry had no self starter so he asked Hankin for the starting handle and seeing his hand on the gear lever asked if it was out of gear. Being satisfied that it was out of gear, he told Hankin how to set the ignition control for an easy start, went to the front and started the engine. He then came back to get into his place, when Hankin, who was still in the driver's seat, said "What do I do now?" Lane showed him which was the clutch pedal and Hankin pressed this down. Lane then said, "You have not got it in gear, have you?", and Hankin said "No", and Lane said "Take your foot off that pedal (clutch pedal) and get over into your seat". Hankin took his foot off the clutch pedal (apparently racing the engine at the same time by the accelerator pedal) and

the lorry jumped forward. Lane said that he endeavoured to apply the hand brake but failed to do so, and hung on to the side of the lorry till it came to the gate, when he let go just before it got on to the rails and was struck by the train.

When Lane asked Hankin if it was in gear, Hankin had his hand on the gear lever and seemed to be playing with it in neutral. There was a certain amount of play in the lever owing to wear and this might have led Hankin to think it was in neutral when actually it must have been in gear.

Conclusion.

Lane gave his evidence in a frank and open manner and there is no valid evidence to contradict the truth of his story; he firmly denied that he was or had been teaching Hankin to drive, but I must admit that the inherent improbability of some portions of his story has engendered considerable doubt in my mind as to its accuracy. However this may be, there is no doubt as to the main fact, that the lorry emerged on to the line at a moment when the most elementary degree of caution would have warned the driver that a collision was inevitable. The folly of allowing a novice to operate the controls of the lorry with the engine running, a few yards from the railway line, is only equalled by the folly of allowing a novice to drive in such circumstances, and whatever the true facts, Lane must bear the main responsibility.

Even if the line was clear of trains when Lane recrossed, the time taken thereafter to start the lorry by hand, and the alleged conversation about the controls, must have taken a long enough period to necessitate another look along the line; owing to the wide interval between the fence and the down track, it is quite possible for a driver, after opening both gates, to move forward a few yards and stop his vehicle in such a position that, while well clear of the line, he can get a full view along both tracks from his driving seat; similar very favourable conditions occur also on the up side, except during the infrequent periods when the up loop track is in use.

The accident is therefore attributable entirely to lack of elementary caution on the part of the men in charge of the lorry, and no blame can be attached to the motorman of the train who had no chance to avoid the collision. It was extremely fortunate that the train was not derailed, with possibly serious results.

Recommendations.

The only suggestion I can offer regarding the equipment of this particular crossing concerns the question of holding the gates in the open position. There are at present no means of securing the gates in the open position and I think that the risk of gates swinging in the wind is an unfair handicap to a single-handed driver, more particularly the driver of a farm cart or cattle for whose use the crossing is admittedly intended.

The argument against the provision of such securing devices, the cost of which would, of course, be trifling, is the obvious one, that their provision would increase the risk of the gates being left open, with the resultant risk of children or cattle straying on to the lines, a risk which is, of course, particularly serious on an electrified line; but the Company have powers of prosecution for leaving the gates open, and I think that if it was found that gates were left open, a little concealed observation and a few prosecutions would check this practice. I suggest the same point should be considered at Wicks Lane Crossing also.

With the exception of this point, which had no bearing on this particular accident, but which came to my notice in the course of my Inquiry, the conditions at this crossing are distinctly favourable for safety, and no adult who exercises reasonable caution should be liable to appreciable risk in using the crossing.

It seems desirable, however, to examine the general question of the occupation crossings on this length of line between Freshfield and Formby. There are public roads running east and west, which cross the line at Formby Station by an overbridge, and at Freshfield Station by a public road level crossing, with the usual equipment of gates controlled by the adjacent signal box.

Between these two points, a distance of 1,500 yards, there are three occupation crossings, College, Barkfield Lane, and Wicks Lane; owing to the absence of a public road running north and south on the west side of the railway, and the inadequate width and locked gates of the private roads, there is no reasonable means of vehicular access to a number of the houses on the west side of the railway except by one or other of these occupation crossings. This is in fact an example of the common case of the occupation crossing, originally provided for purely agricultural or private use, which has in course of time, owing to building developments, etc., acquired a public user.

Representatives of the Formby Urban District Council were good enough to attend my Inquiry at my request, and discuss the situation which causes them some anxiety. There had been a collision between a train and a car at Wicks Lane Crossing in 1932, fortunately without fatal result, and representations had been made by the Council to the Railway Company and to the Ministry as to the risks entailed by these unprotected crossings; there is a large school adjacent to Barkfield Crossing, the boys of which use the crossing, and this is a cause of anxiety to the headmaster.

College Crossing.—As far as I could ascertain, this was originally a Public Road crossing and this appears to be confirmed by the conveyance of the land and by the book of reference; it is understood by the Council, however, that when a new Public Road crossing was made at Freshfield Station some 120 yards away there was some agreement that the Public rights at College Crossing should be waived in favour of the station crossing. I was informed that vehicular traffic over College Crossing was trifling, and as the alternative route via the station public road crossing is not appreciably longer, no material inconvenience would be caused by its being closed to vehicular traffic.

Barkfield Crossing.—The status of Barkfield Crossing has been described earlier in this report. It has a small vehicular user, a typical day giving a total of 25 vehicles necessarily using the large gates, and a substantial user by cyclists and pedestrians using the wicket gates approximately 300 in all.

In 1925 the Railway Company took steps to ascertain the persons who were entitled to vehicular use of the crossing, and having ascertained that there was only one person so entitled, Mr. Formby, a local farmer, they padlocked the main gates and issued a key to this farmer. It may be noted that the padlocking of occupation gates with the issue of keys to entitled users is a very common practice throughout the country and is desirable for obvious safety reasons. The Company had, however, a number of protests from various residents and from the agent of the estate on the west side of the line and decided to remove the padlocks pending further discussion of the matter.

Wicks Lane Crossing.—This also was an occupation crossing originally, but the roads leading up to it on both sides are now maintained by the Council. I was informed that of the three crossings this has distinctly the largest user, an average day giving a count of 48 vehicles, etc., necessarily using the large gates, with about 350 cyclists and pedestrians using the wicket gates.

The arrangement of main gates and wickets at this crossing and at College Crossing are generally similar to Barkfield, already described.

As the result of the representations made after the accident in 1932, a scheme was prepared by the Railway Company for the provision of warning signals operated automatically by the trains, at Wicks Lane level crossing; but to allow adequate time to open both gates and to cross, it was found that a warning period of approximately four minutes was necessary, and in view of the intensity of railway traffic in both directions this long warning period rendered the safe periods so few and short in the daytime that the Council decided that the arrangement was not worth the expense, which was estimated at about £500 initial and £36 annually; the Company's officers were of the same opinion and after seeing particulars of the way the scheme worked out I can only agree that this decision was reasonable.

I discussed with representatives of the Council the possibilities of improvement as regards these three crossings. A town planning scheme now under consideration contemplates a road running north and south about $\frac{3}{4}$ -mile west of the railway, and linking up with the existing east and west roads which cross the line at Freshfield Station level crossing and Formby Station overbridge.

When this is provided and the area of the estate enclosed thereby is opened up with proper road communication, there would be no necessity for any of the three occupation crossings to continue in public use for vehicles. But this road is, I fear, at present in the somewhat indefinite future.

As regards a road bridge at Wicks Lane crossing, the representatives of the Council pointed out that this would be a costly matter owing to adjacent property, and the number of houses to be served at present probably does not justify such expense; moreover, it would become less necessary when the ring road referred to above is constructed. The same objections apply at Barkfield crossing with even less justification for the expense.

Suggestions have been made locally that the crossing gate should be locked from the nearest signal box prior to the approach of a train, but there are practical reasons which render the remote control of gate locks an unsatisfactory and unreliable arrangement.

Considering the suggestion of a footbridge for pedestrians only, it is generally recognised that a footbridge is of little value at an occupation crossing unless the large gates can be abolished or kept locked; a number of pedestrians will not trouble to use a bridge if they can cross on the level by opening the large gates. Moreover, a footbridge would not eliminate the danger to the railway trains of collision with road vehicles.

As already noted the crossings are not dangerous to adult pedestrians, and I think those in charge of young children must accept the necessity for exercising the same supervision as they have to do when crossing a high speed main road.

I think, however, that an attempt should be made to improve matters by one of the three schemes noted below.

(a) Extend College Avenue to Formby Station and throw it open for its entire length from Freshfield to Formby; abolish College, Barkfield and Wicks Lane crossings as vehicular crossings, leaving wickets for pedestrians and cycles at Barkfield and Wicks Lane.

The narrow width of College Avenue and possible questions of maintenance, together with the cost of the road extension may make this impracticable, but I think it is the best scheme and worth serious consideration.

(b) Throw open the whole existing length of College Avenue, close College crossing, and close Barkfield crossing for vehicular use; arrange with the Railway Company to dedicate Wicks Lane crossing as a public road crossing, staffed and equipped as such.

As the roads on both sides of this crossing are now publicly maintained this scheme appears to be worth consideration by the Council; it would probably be somewhat more convenient for the residents on the west side of the line than scheme (a) and the initial cost would probably be less than scheme (a) though the annual cost would, of course, be greater.

(c) Failing either of the above schemes, I think it would be worth while to improve safety at Wicks Lane by a modified form of warning signal, if at the same time Barkfield and College crossings could be closed to vehicular traffic.

The original scheme for warning signals was found to be of little value because it was based on a period of four minutes warning, so as to cover the time required by a driver to open both gates and to cross. A much shorter period would suffice to cover the time of crossing alone, and I suggest that the warning period need not cover the time required for opening the gates, it being recognised that if the warning was displayed it would mean that the train was in the immediate vicinity, and that it was not safe to cross even though the gates had been opened already. It must be realised that it is not possible to arrange the whole of the control and operating circuits of such a warning so as to fail on the safety side, i.e., so as to give a stop warning in case of any failure, but it should be possible in this case to obtain such a high standard of reliability that the coincidence of a failure with circumstances likely to cause an accident would be very remote.

All of these three schemes require co-operation not only by the Railway Company and the Council, but also by the householders and owners of the Blundell estate on the west side of the line. In view of the facts that the risks of the present situation have arisen owing to the erection of houses without adequate and safe road access, and that the only traffic concerned is that to and from these houses, I feel little doubt that such co-operation on the part of the householders and estate owners should be forthcoming.

I was assured that the Formby Urban District Council were anxious to co-operate in any practical measures and I formed the impression that they would not adopt a "non possumus" attitude as regards reasonable expenditure on a useful scheme.

Remarks.

There are nowadays throughout the country a number of occupation crossings originally provided for agricultural purposes, field to field, or similar very limited use by one or a few individuals, which owing to building or road development, etc., have acquired in course of time a public user, or a frequent user by heavy vehicles on a scale not contemplated originally. For the protection of these occupation crossings, the Railway Company has no specific responsibility, such as is imposed by Statute at Public Road level crossings, which must usually be protected by gates closing alternately across road and rail, and operated by the Company's staff, under which conditions statistics show that the risk of accident is trifling.

The result of such increased user by road vehicles necessarily increases the risk of accident, not only to the road vehicle but also to the trains. In many cases such risk can only arise from lack of common caution on the part of the vehicle driver, as in the case dealt with in this report, but there are places with poor visibility, curvature, etc., where it is much less easy for a vehicle driver to make certain of safety before crossing.

It is idle to imagine that the question will be solved by bridging, the cost of which, except possibly in a few special cases, must put this out of court; the only three solutions which appear feasible are (a) the diversion of the increased vehicular traffic on to a public road, possibly at the expense of some extra mileage, (b) the dedication of the crossing as a Public Road crossing, equipped and staffed as such, or (c) the provision of warning or protective arrangements at the crossing.

As regards (a) I believe this is really possible in a number of cases, and I think, therefore, that the Railway Companies should be supported in the policy which I understand they all follow at present, of endeavouring wherever possible to maintain padlocks on occupation gates, issuing keys only to those legally entitled to use the crossing, or better still, obtaining agreement to closing the crossing altogether.

Scheme (b) would only apply in cases where the approaches to the crossing are publicly maintained, but in the majority of such cases I see no reason why a Railway Company should not be prepared to adopt this arrangement on suitable financial terms.

Scheme (c) may take the form of a watchman at busy hours, or a warning signal, light or bell worked automatically or from the nearest signal box. (As already noted, it is not practicable to lock occupation gates from a distance or automatically.) A difficulty about the provision of any such warning apparatus is that there must always be some possibility of failure; if the failure occurs on the safety side, as it should be designed to do, that is to say, if a failure results in the display of the warning, even though no train is approaching, there is the risk that an observed failure will much discount the respect paid to the warning in future; if it fails on the danger side, and an accident ensues, it is apparently legal opinion that liability for the accident would be likely to be placed on the authority providing or operating the warning apparatus.

It is an unfortunate position if a scheme to enhance safety on the part of either a Railway Company, a local authority, or a crossing user, should result in placing upon the authors a liability to which they would not be subject if they made no attempt to improve safety, and I cannot but think that this legal difficulty should be surmountable.

I suggest that the problem of a number of these dangerous crossings can be solved on the lines indicated above by co-operation between the Railway Company, Local Authority and crossing user concerned, provided the problem is attacked as one of common interest to all parties.

The points discussed above refer mainly to vehicular user of occupation crossings. Many such crossings are also footpath crossings for pedestrians, but the risks to pedestrian users are as a rule no greater than those which nowadays attend the crossing of a busy main road; in cases where a number of children have to use a crossing, e.g., for going to or from school, the presence of an adult to control them, as is frequently arranged at road crossings outside schools, appears to be the obvious solution.

In the particular case referred to in this Report, the houses on the west side of the railway which are unprovided with satisfactory road access are not of very recent construction nor are they very numerous. There are other and more recent cases, however, where extensive building development has and is taking place relying largely on the use of old occupation crossings for access. I suggest that, before approving such schemes, it should be the duty of the local authority concerned to satisfy themselves that the development includes the provision of adequate, convenient and safe means of access, both vehicular and pedestrian. If this can be done it will at any rate put a check on the future creation of the more flagrant cases of unnecessary danger spots.

I have the honour to be,

Sir,

Your obedient Servant,

A. C. TRENCH,

Colonel.

The Secretary,
Ministry of Transport.