

Public Works (1898) Department.

RAILWAY BRANCH.

G.O., No. 1308. *Ry.*

DATED 2nd Oct 1898.

[Despatch Abstract.]

Railway Passenger Communication.
Coming to the Ry. Admin. Concerned, Memo-
randum from the Govt. of India enclosing
a copy of report of the Committee of Inquiry
appointed by the President of the Board
of Trade regarding the ———.

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FURTHER PAPERS.

RAILWAY PASSENGER COMMUNICATION.

REPORT

OF THE

COMMITTEE OF INQUIRY

APPOINTED BY

THE PRESIDENT OF THE BOARD OF TRADE.

Presented to both Houses of Parliament by Command of Her Majesty.



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1898.

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Minute of Appointment.

AT THE COUNCIL CHAMBER, WHITEHALL,

This 3rd day of May, 1897,

PRESENT:

The Right Honourable CHARLES THOMSON RITCHIE, M.P.

The Board of Trade are pleased to appoint—

Sir THOMAS W. P. BLOMEFIELD, Bart. (Chairman),

Sir WILLIAM BIRT,

Sir DOUGLAS FOX,

Major-General C. S. HUTCHINSON, C.B., and

Mr. GERALD W. E. LODER, M.P.,

to be a Committee to consider and report

(a) whether the means of communication between the passengers in railway trains and the servants of the Company in charge of the train at present adopted are efficient;

(b) whether any particular system of communication in use, or available, is so efficient as to make its general adoption by the Railway Companies desirable;

Also to consider and report whether any extension or amendment of the law on the subject is desirable.

The Board of Trade are also pleased to appoint Mr. W. F. MARWOOD to be Secretary to the said Committee.

(Signed) CHAS. T. RITCHIE.

RAILWAY PASSENGER COMMUNICATION.

Report of the Committee.

To the Right Honourable CHARLES THOMSON RITCHIE, M.P.,
President of the Board of Trade.

SIR,

We have the honour to report that in accordance with the instructions contained in the Minute of the Board of Trade of the 3rd May, 1897, we have carefully considered whether the means of communication between the passengers in railway trains and the servants of the Company in charge of the train at present adopted are efficient, whether any particular system of communication in use, or available, is so efficient as to make its general adoption by the Railway Companies desirable, and also whether any amendment or extension of the law on the subject is desirable.

The only legislative enactment bearing upon the subject is section 22 of the Regulation of Railways Act, 1868, which enacts that "After the first day of April, 1869, every Company shall provide, and maintain in good working order, in every train worked by it which carries passengers, and travels more than twenty miles without stopping, such efficient means of communication between the passengers and the servants of the Company in charge of the train as the Board of Trade may approve. If any Company makes default in complying with this section it shall be liable to a penalty not exceeding ten pounds for each case of default. Any passenger who makes use of the said means of communication without reasonable and sufficient cause shall be liable for each offence to a penalty not exceeding five pounds."

In order to ascertain the present practice of the Railway Companies, the Committee addressed a circular letter to 36 of the leading Companies, asking for information as to the systems of communication in use on their lines, and inviting them to nominate representatives to give evidence before the Committee.

The replies to this circular showed that the systems adopted may be divided into three classes: (1) Systems where communication is made by pulling a cord or wire, placed either inside or outside the carriages; (2) Systems in which the communication is made by means of electricity; (3) A system by which a passenger can attract the attention of the servants in charge of the trains by a partial application of the brake.

Some Companies provide no means of communication, as none of their trains exceed the above-mentioned limit of distance without a stop.

CORD SYSTEMS.

The method of communication by means of a cord outside the carriage, which is well known and needs no description, is still used by the majority of the Companies.

This system was approved by the Board of Trade in 1869, but the approval was withdrawn in 1873.

Two Companies use a modification of this system, in which a cord or wire passes through the inside of the carriages. On the London Tilbury and Southend Railway this is placed under the roof, and on the London Chatham and Dover Railway along the floor of the carriages. In both cases, the cord or wire when pulled should cause a bell to ring on the engine and in the guards' vans.

The cord system used by the latter Company was approved by the Board of Trade in 1869.

ELECTRICAL SYSTEMS.

Various forms of electrical communication are adopted by the following Companies:—

The London Brighton and South Coast Railway use a system invented by Messrs. Stroudley and Rusbridge, and approved by the Board of Trade in July, 1887. This is applied to all the Company's trains, and it is stated in evidence that no case of its failure to act is recorded.

The South Eastern Railway Company have fitted to almost all their trains an apparatus invented by Mr. Walker, and approved by the Board of Trade in February, 1869.

The London Chatham and Dover Railway Company use a system, known as Varley's, on some of their express trains. The same arrangement is also used by the Hull and Barnsley Railway Company. It has not been submitted for the approval of the Board of Trade, but both Companies state that it works in a satisfactory manner.

In each case the communication is made by means of a handle within the carriage, and a bell is rung on the engine and in the guards' vans, but the systems vary somewhat in their details.

In Varley's system two wires are used, necessitating two couplings between each carriage, while in the other systems one coupling only is required.

On the South Eastern Railway an indication of the compartment in which the apparatus has been used is afforded by means of a disc outside the carriage.

Some of the Companies who use the cord have fitted electrical communication on particular trains, *e.g.*, the London and North Western and Caledonian Companies on the Royal train, the Great Western Railway on their corridor trains, and the Great Northern Railway (Ireland) on their limited mail trains.

BRAKE SYSTEM.

A means of calling the attention of the servants in charge of a train by a partial application of the Automatic Vacuum brake is adopted on the Great Central and Furness Railways, and partially on the Cambrian Railway.

The passenger wishing to use the apparatus, moves a handle inside the carriage, and thereby opens a valve admitting a certain amount of air into the brake pipe, thus partially applying the brake. At the same time an indication is given, by means of a disc outside the carriage, of the compartment from which the signal has been given.

When the brake is thus applied, the driver can either stop the train at once, or, if the alarm is given from one carriage only, he can overcome the resistance for a time and allow the train to proceed for a certain distance until it reaches a suitable stopping place. If, however, the alarm is given from more than one carriage, the train is speedily brought to a standstill.

No direct indication is given to the driver or guards that the apparatus has been used beyond that furnished by the brake gauge, but the effect upon the train should call their attention to the fact that the brake has been applied.

This system was provisionally approved by the Board of Trade in 1890, and the approval was confirmed in 1893.

SYSTEMS IN USE ON RAILWAYS IN OTHER COUNTRIES.

The Committee thought it desirable to ascertain the means of communication used on railways in other countries, and they therefore requested the Board of Trade to obtain for them through the Foreign, Colonial and India Offices information as to the means adopted on the principal railways in Austria, Hungary, Belgium, France, Germany, Italy, Russia, Switzerland, the United States of America, Canada, New South Wales and India.

The replies received show that in Austria all fast and express trains are fitted with an electrical communication (system Rayl). In Hungary the

use of corridor carriages is said to be nearly universal, and, when these are fitted with an automatic brake, means are provided to enable the passengers to apply it, and thus call the attention of the servants in charge of the train, and no further means of communication is thought necessary. A system of electrical communication was formerly employed, but it has gone out of use since automatic brakes were generally adopted on main lines. In Belgium a means of communication by the application of the Westinghouse brake, similar in principle to that used in connection with the vacuum brake by the Great Central and other railways in this country, is in force on the State railways, and it is instructive to note that it was thought desirable to increase the size of the valve through which the air escapes from the brake pipe, when the brake is applied by a passenger, so as to ensure the speedy stoppage of the train. The same arrangement is used on the principal Italian railways. In France the system to be adopted is left to the discretion of the individual Companies, some of which employ electrical means, generally "Prudhomme's" system, whilst others prefer the Westinghouse brake system.

In Germany almost all passenger trains are fitted with automatic brakes, and means are provided to enable passengers to apply the brake in case of emergency.

In Russia and Switzerland corridor carriages are generally used, and when automatic brakes are provided, passengers can apply them.

In Canada there is direct means of access from one part of a train to another, each carriage being connected to the next by a gangway, but a cord runs through the train by which a signal to stop can be conveyed to the driver.

In India various means of communication have been tried, but the Indian Government state that the only one that has given satisfaction is an electrical method, invented by the late Mr. G. K. Winter. This system, in which the electric connection between the carriages is made by means of the side or safety chains, has been in use on the Madras Railway since 1880, and is being introduced on the South Indian Railway.

No information as to the methods of communication in the United States and New South Wales has been received.

WITNESSES.

The first witness who gave evidence before us was Mr. F. J. S. Hopwood, C.B., C.M.G. The Committee are indebted to him for an account, both of the causes that led up to the inclusion in the Regulation of Railways Act, 1868, of the section requiring the provision of means of communication, and also of the action subsequently taken by the Board of Trade and the different Railway Companies under the section.

The Committee then proceeded to examine the following representatives nominated in response to the circular issued by the Committee:

Witness.	Company Represented.	Position in Company's Service.
Mr. H. Pollitt	Great Central Railway	Locomotive Engineer.
Mr. R. J. Billinton	London Brighton and South Coast Railway.	Locomotive and Carriage Superintendent.
Mr. T. I. Allen	Great Western Railway	Superintendent of the Line.
Mr. C. Spencer	London Chatham and Dover Railway.	Works Manager.
Mr. W. R. Sykes	London and South Western Railway.	Telegraph Inspector.
Sir C. Scotter		General Manager.
Mr. W. L. Mugliston	Midland Railway	Superintendent of the Line.
Mr. J. Alexander	Great Northern Railway	Superintendent of the Line.
Mr. W. Leonard	South Eastern Railway	Telegraph Superintendent.
Mr. I. Kempt	Caledonian Railway	General Superintendent.
Mr R. Turnbull	London and North Western Railway.	Chief Passenger Superintendent.
Mr. B. Bullock	London Tilbury and Southend Railway.	Traffic Manager.
Mr. F. T. Hollins	Great Eastern Railway	Telegraph Engineer.

The Committee also had the benefit of learning the views held by Lieutenant-Colonel H. A. Yorke, R.E., one of the inspecting officers of railways to the Board of Trade, by Mr. G. P. Neele, who for 35 years was superintendent of the line on the London and North-Western Railway, and by Mr. C. E. Spagnoletti, consulting electrical engineer to the Great Western Railway Company, and formerly their electrician in chief.

CONCLUSIONS AS TO EXISTING SYSTEMS.

Most of the witnesses examined by the Committee agreed that the ordinary means of communication by means of a cord outside the carriage is unsatisfactory, and with these opinions your Committee entirely concur.

Owing to the difficulty of obtaining access to the cord in cases of emergency, and to the uncertainty of its action when pulled, this system cannot be regarded as affording a reliable means of communication, and the Committee have no hesitation in condemning it.

Some advantages over this system are no doubt possessed by those in which a cord or wire passes inside the carriages, but the Committee cannot hold that they are satisfactory.

As regards the electrical systems of communication referred to above, the Committee had the advantage of making trial of that in use by the London Brighton and South Coast Railway Company, on a train placed at their disposal by the Company. They found it to work efficiently, whilst the Company, as previously mentioned, have no record of its having ever failed.

Evidence was received by the Committee indicating that the electrical methods in use on the South Eastern and London, Chatham and Dover Railways had given satisfactory results.

The Committee also had an opportunity of inspecting an electrical system fitted by the Great Eastern Railway Company to one of their trains, in which the wires are carried along the brake pipes, and the coupling of the pipes between two carriages automatically gives the necessary connection between the wires. This system worked satisfactorily when tested, and it has the advantage of obviating the necessity for any additional coupling, a point which the Committee think will be found of considerable importance to Railway Companies in working their Traffic.

The Committee are of opinion that all these electrical systems, though some of them may be capable of improvement, may be considered as providing efficient means of communication.

The London and South Western Railway Company have been good enough, at the request of the Committee, to fit up a train with a somewhat similar system, in which the electrical connection between the carriages is made by coupling the side chains.

The system was invented by the late Mr. G. K. Winter, and, as has already been stated, is largely used in India.

As the train has only recently been fitted with the apparatus there has not been time for a prolonged trial of the system, but, so far as the tests have gone, they have, we understand, been satisfactory.

The conducting surfaces, however, being open to the atmosphere and to dust or snow, are not likely in the opinion of the Committee, to be as efficient as those which are placed within the brake coupling.

A system of Communication by means of the automatic brake has been applied in this country only on trains using the vacuum brake.

Through the kindness of the Great Central Railway Company, the Committee have had an opportunity of practically testing this method of communication. It worked satisfactorily, and Companies by whom it has been adopted speak of it in the highest terms. One of its great advantages is that each carriage is complete in itself, and the coupling of the brake pipes between two carriages of necessity connects the means of communication. It has also been pointed out to the Committee that, in the case of interchange rolling stock fitted with both the vacuum and Westinghouse brakes,

the same apparatus within the compartment can be made to actuate valves connected to either brake pipe, so that, whichever brake is in use, the means of communication is available.

As already stated, the system is largely applied on Continental railways to the Westinghouse brake, and appears to have given satisfaction, but in the opinion of the Committee it would be improved by an additional arrangement by which the attention of the driver and guards might be audibly called to the signal, and by which drivers and guards could communicate with each other.

It has been suggested that the increasing use of corridor or other similar carriages will do away with the necessity for means of communication, but the Committee cannot agree with this view, as they are of opinion that some method of communicating with the driver and guards is as necessary upon corridor as upon other trains.

Your Committee have carefully considered the second point referred to them, *viz.*, whether any system in use or available is so efficient as to make its general adoption desirable.

The Committee do not think that any one of the electrical systems of communication in use at the present time possesses such advantages over the others or over the brake system as to justify them in recommending it for general adoption.

On the other hand, many Railway Companies entertain a strong objection to granting to a passenger even a limited control over the brake, and the Committee do not think that a system which involves the grant of such a control, however efficient it may be, should be pressed upon a Company against the advice of its responsible officers.

Of systems not in use, but available, the Committee have had a number brought before their notice. Many of these are very ingenious and do credit to their inventors, but they have in most cases been anticipated by other inventions, and either closely resemble, or possess no great advantage over means now in use.

CONDITIONS WHICH A METHOD OF COMMUNICATION SHOULD FULFIL.

The following are the conditions which it appears to the Committee a method of communication should fulfil to be entirely satisfactory:—

1. It should be one which would lend itself readily to the interchange of carriages between different Railways.
2. It should be easily applicable, and should communicate directly with the driver as well as with the guards, whilst the means by which it is actuated by the passenger should be in a conspicuous position, either in the centre, or at both ends of the compartment, without affording too great a temptation to passengers to tamper with it.
3. It should be reasonably cheap, as to both initial cost and maintenance.
4. It should afford an indication outside the carriage of the compartment from which the communication has been made, and a passenger should not be able to replace the means by which the alarm is given.
5. It should not entail the use of additional couplings to those already existing, *viz.*, the screw coupling, the side chains, the automatic brake, and the heating apparatus (where in use).
6. It should be capable of being used as a means of communication between the driver and guards of a train, as well as between the passengers and the driver and guards.

EXTENSION OF THE EXISTING LAW.

The Committee were also directed to consider whether any extension or amendment of the law on the subject is desirable, and to this point they have given careful attention.

Under the present law means of communication need only be provided on trains running 20 miles without stopping. It is obvious, however, that serious harm can be done, either by accident or design, in a journey of much less

duration. Experience has unfortunately shown that a very short journey affords sufficient time to enable murder and outrage to be committed.

Several railway companies have already fitted, or are fitting, means of communication to all their trains, irrespective of the distance to be run without a stop, and representatives of other companies agreed in evidence that such an extension was reasonable.

The Committee are of opinion that the law should be so amended as to require efficient means of communication to be provided on all passenger trains.

CONCLUSIONS.

On the three points to which the enquiry of the Committee was directed, their conclusions may therefore be summarised as follows:—

- I. That of the methods of communication at present adopted, the outside cord system should be condemned as inefficient, while the system in which the cord or wire is inside the carriages cannot be regarded as satisfactory. The principal electrical systems and the communication by means of the brake may, however, be held to be efficient.
- II. That no one of the electrical systems so far excels the others as to enable the Committee to recommend it for general adoption, although they prefer the system of communication described above as experimentally used on the Great Eastern Railway.
- III. That the law should be extended so as to require the provision on all trains of an efficient means of communication between passengers and the servants in charge of the train, which could also be used as a means of communication between the guards and driver.

Reference has been made above to certain trials conducted by the Committee, who desire to express their obligations to the Great Eastern, Great Central, and London Brighton and South Coast Railway Companies, for having placed trains at their disposal, whilst the first of these Companies, in addition, afforded the use of their line for the trials. The Committee are also indebted to the London and South Western Railway Company who, at their request, fitted up a train with an electrical system. They also desire to thank those gentlemen who appeared to give evidence for the assistance which they rendered.

In conclusion, the Committee wish to express their appreciation of the services of their Secretary, Mr. Marwood, who has been of the greatest assistance to them throughout their enquiry.

We have the honour to be, Sir,

Your obedient servants,

(Signed) T. W. P. BLOMEFIELD.
WILLIAM BIRT.
DOUGLAS FOX.
C. S. HUTCHINSON.
G. W. E. LODER.

W. F. MARWOOD, Secretary.

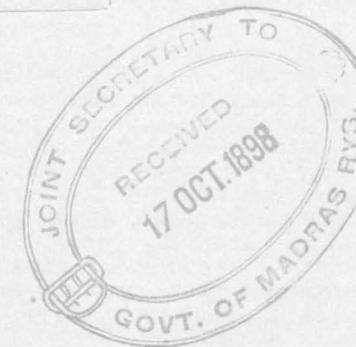
June, 1898.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

RAILWAY TRAFFIC.

All communications
should be addressed
to the Secretary.



Simla, the 6th October 1898.

The under-mentioned paper is forwarded to the Joint Secretary to the Government of Madras, Public Works Department, Railway Branch, for information.

By order,

W. F. Marwood
Offg. Under-Secretary.

Captain, R.F.,

Document referred to:—

Railway passenger communication.

Report of the Committee of inquiry appointed by the President of the Board of Trade, dated June 1898.

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