

Public Works (1893) Department.

RAILWAY BRANCH.

G.O., No. 1187 R

DATED 7th September

[Despatch Abstract.]

Railway Conference of 1893. — Letter from the Secretary, Railway Conference, forwarding certain papers relating to Conference questions previously circulated, communicated to the Examiners, Guaranteed Railway accounts.

BACK PAPERS.

G.O.	No.	Department.	Date.
	1183	R	7-9-93
	1185	R	7-9-93
	1186	R	7-9-93

FURTHER PAPERS.

G.O.	No.	Department.	Date.	G.O.	No.	Department.	Date.

RAILWAY CONFERENCE, 1893.

B.

Papers circulated in the event of Railways, parties to the Conference, having any definite proposals to bring forward for discussion thereon.

No. 22. I

DIVISION OF WORKING EXPENSES BETWEEN COACHING AND GOODS TRAFFIC.

DIVISION OF WORKING EXPENSES BETWEEN COACHING AND
GOODS TRAFFIC.

No. 434 R. T., dated the 8th August 1893.

From—The Under-Secretary to the Government of India, Public Works
Department,

To—The Secretary, Railway Conference.

I am directed to request that the correspondence recorded in the marginally
noted proceedings of the Government of India on
the division of expenses between coaching and goods,
as well as the note on the same subject by General
Strachey recorded in Proceedings Railway Traffic,
March 1890, Nos. 203-207-A, may be laid before the forthcoming conference.

Proceedings, Railway Traffic, June
1885, Nos. 39-84-A.
Proceedings, Railway Statistics,
June 1892, Nos. 80-94-A.

No. 37 Railway, dated the 3rd April 1884.

From—The Secretary of State for India,

To—The Government of India.

In recognizing the simplification introduced into the statistical returns of
railway working and the promptitude with which they have been prepared
and sent home, since the adoption of the recommendations of the Committee,
whose proceedings you forwarded to me under your Railway Despatch No. 162,
dated 9th November 1880, I would invite your reconsideration of the method
of apportioning the working expenses between coaching and goods traffic for the
purpose of calculating the cost of transport. The effect of that method is to
reduce the proportion of expenses allocated to coaching traffic and increase
that for goods, inasmuch that the cost of a coaching train mile on the Great
Indian Peninsula railway in the second half of 1882 is, by the present system
of analysis, only Rs. 1.61 against Rs. 2.36 on what is known as Mr. Rendel's
system.

2. In making the cost of carrying goods appear higher than is warranted,
the present system has a tendency to encourage high goods rates. Both Mr.
Rendel's and the original Government system of analysis may have called for
modification, but in ignoring the requirements as well as the effects of the
high speed of passenger trains in both the locomotive and maintenance depart-
ments, and in considering only weight when apportioning the cost of working
a goods and passenger train respectively, too much has been conceded to the
simplicity of a division of the expenses of all departments in the gross and on
the gross ton mile unit.

3. I enclose, for the consideration of your officers, a memorandum, dated
10th March 1884, by Mr. Rendel, advocating the division of the expenses on
the train mileage consumption of fuel; also a memorandum, dated 23rd February
1884, by Colonel Williams, Deputy Government Director of Indian railways,
and a copy of the letter of the Auditor, Great Indian Peninsula Railway Company,
No. 164 of 20th June 1883.

Dated 10th March 1884.

Memorandum by A. M. RENDEL, ESQ.

When I began, in 1870, the analysis of traffic, published since that time in
Mr. Danvers' and later on in the East Indian Railway Company's reports, it
being necessary to determine the cost per train mile before the cost per unit of
traffic could be fixed, I accepted the then usual theory that a passenger and

goods train cost about the same per mile run. I certainly thought the theory one which charged the passenger traffic with rather more its fair share of the total expenditure on a railway; but, in 1870, we were a long way from fixing the rates for transport with any reference to the actual cost, and I considered that, provided I took care to state the basis of my calculations, it mattered little whether the basis was absolutely accurate or not.

The case, however, is now becoming very different. Rates for 3rd class passengers, for grain, and coal, are now being fixed so low, with a certainty of going lower still, that it is really important to determine the actual cost of transporting a unit of passenger or goods traffic a unit of distance as closely as circumstances will permit.

It must of course be admitted by all that only approximation is possible; but of all the methods of approximation which I have seen, the one which, to my mind, is farthest from the truth is that now employed by the Government, namely, division of expenditure in the proportion of gross weight of trains.

In this method nothing is considered except gross dead weight; and, therefore, inasmuch as a passenger train weighs but little more than half as much as a goods train, the cost of running a passenger train is made to appear not much more per mile run than half the cost of a goods train.

It is clear that if the cost is to be determined on a mechanical view of the case, to which I do not object, speed must be taken into account as well as weight; and if speed be allowed for, the cost of the passenger train would be materially greater than if calculated by weight alone, because passenger trains are run at a much higher speed than goods.

The question is, how to bring into the calculation of cost the influence of speed.

The only way which occurs to me—and I think it a very good way—is to divide the total working expenses between passengers and goods on the basis of the power expended upon each, taking the consumption of fuel upon each as the measure of the power.

I should take the consumption of fuel per traffic train mile only. It is probable that more of the shunting, &c., mileage is chargeable to goods than to passengers; but then power is wasted in carrying goods traffic in order to keep it clear of passenger traffic, &c., and this should be charged to passengers. On the whole, therefore, I think no appreciable error would result from taking train mileage consumption only.

I think also that my method of treating as credits to working expenses all receipts which are not properly receipts for the transport of goods and passengers, such as telegraph and special receipts, rents and demurrage, and miscellaneous, is correct, and of course all expenditure on and receipt from steam-boats should be omitted, so as to leave on the one side of the account nothing but the railway receipts from passengers and goods, and on the other nothing but the railway expenditure. I used also to credit working expenses with rents received from house property. This is not quite defensible, but the error is smaller than it looks, because maintenance of house is charged under maintenance of way, and it may, I think, for the sake of convenience, be retained, provided it be retained on all lines alike.

The *modus operandi* of this system would be as follows:—Locomotive Superintendent would return, as he does at present, so much fuel consumed by passenger trains (call it A), and so much consumed by goods trains (call it B). Then the share of working expenses chargeable to passenger traffic would be $\frac{A}{A+B}$ and to goods $\frac{B}{A+B}$ of the whole, and the cost per train mile of each would be determined by dividing the share of each by the train mileage of each.

If this new method of mine were adopted, the cost per train mile of the two services on the East Indian railway for the first half of 1883, under the new Government scheme, under the Great Indian Peninsula Auditor's scheme (which

is practically the same as the old Government system), and under my old and new methods, would be as follows:—

	Passengers. Rs.	Goods. Rs.
(1) New Government system ...	1.08	1.85
(2) Great Indian Peninsula Auditor's system ...	1.41	1.8
(3) My old system ...	1.6	1.6
(4) My new ditto ...	1.43	1.68

The noticeable point about these four methods is the small difference between the cost of passenger and goods trains in (2), (3) and (4), and the huge difference between them according to (1). The practical agreement between (2), (3) and (4) is, I think, alone an argument for condemning (1).

Nos. (2) and (4), it will be seen, agree very closely. Of the two I naturally prefer my own, that is (4), and I claim for it that it is at once the most simple and most scientific. But whether (2), (3) or (4) is accepted, is of small importance compared with the real necessity which exists for abandoning the present Government method; because this method, omitting, as it does, all considerations but gross weight, is clearly wrong in principle, and has already been actually mischievous in practice.

The low rate at which it places the cost of the passenger train has been used in aid of the argument for excluding 3rd class passengers from the mail train on the East Indian railway between Howrah and Allahabad—a measure unjust to the native, and throwing heavy unnecessary cost on the Government and Company; and the high rate at which it places the cost of goods is employed in aid of the resistance made on the same line to the reductions in the upward coal rate for which the Government has lately asked.

Dated 23rd February 1884.

Memorandum by COLONEL E. C. S. WILLIAMS, R. E.

[*Statistics of railway working and analysis of carrying cost.*]

In 1880 the Government of India convened a Committee to consider these matters, and adopted their recommendations. The results are a great simplification in the statistical forms and promptitude in their preparation.

In calculating the carrying cost, it is necessary to make certain assumptions, more or less arbitrary, for the division between coaching and merchandise traffic of expenses of working, so as to arrive at the cost of carrying over one mile a coaching unit (a passenger) and a goods unit (one ton of goods).

The Committee advocated that the division should be made in the ratio of the gross ton miles, *i.e.*, live and dead weight hauled over the line, for coaching and goods respectively.

Expenses are divided under (A) Maintenance of Way and Works, (B) Locomotive, (C) Carriage and Wagon, (D) Traffic, (E) General, (F) Steam-boats, (G) Special and Miscellaneous.

The Committee treated all these alike, and the Government agreed.

But previous to 1880, and for many years, there was a Government system of analysis in force, which divided (A) on gross ton-mileage, (B), (E) and (G) on the train mileage, (C) and (D) on the vehicle mileage, under coaching and goods respectively. This differentiation had been introduced after very careful consideration of the circumstances affecting the cost of each kind of traffic in each department of working. So far as the mere division of the expenses in the gross, or in three portions separately, is concerned, there is no extra labor worth thinking of.

Also, previous to 1880, Mr. Rendel had introduced in this country, and Mr. Danvers had circulated with his annual reports, an analysis based on a train

mileage division, which implied that the cost of working a passenger train was always the same as that of working a goods train.

All are approximations, and there is no absolutely correct system, but the object is to approximate to the truth as nearly as may be.

The Auditor of the Great Indian Peninsula Railway Company has recently given his attention to the matter, and has recommended—see his letter of 28th June 1883, No. 164 (copy annexed)—that the old Government system should be adopted, with the one exception that (D) should be divided on train mileage, instead of vehicle mileage. The Auditor does not allude to the old Government system, and has, apparently, arrived at his conclusions independently.

The effect of the new Government system is to favour coaching, and weight goods. Thus, the cost of working a coaching and goods train mile under the several systems is—

System.	ON GREAT INDIAN PENINSULA RAILWAY, 2ND HALF OF 1882.	
	Coaching.	Goods.
New Government	Rs. 1'61	Rs. 2'83
Mr. Rendel's	2'36	2'36
Auditor, Great Indian Peninsula's	1'99	2'39

Old Government system not calculated, but much the same as the Auditor's.

I submit that the matter is worth referring to the Government of India for reconsideration, now that some one, not responsible for the old Government system, has entered a protest against the new system, and seeing how wide the differences are.

Hitherto I have considered it best to take the good of the new system with the bad, and have assisted in every way its acceptance by the Railway Companies, and they have accepted it, and co-operate fully in preparing the statistics.

Some change in the direction indicated, if now made, would lead to no dislocation.

No. 164, dated 28th June 1893.

From—E. V. JORDAN, Esq., Auditor, G. I. P. Railway Co.,
To—The Agent, G. I. P. Railway Co.

In dealing with matters that frequently arise between your office and mine, it is often necessary for me to quote (as mentioned in my No. 163 of this date upon the results of working the Dhond and Manwar chord line) statistical information compiled in this office, and upon which it has been customary to place some reliance. But our statistics are not prepared according to one accepted method. We quote Rendel's method and the analysis mode, and the results arrived at vary so considerably that it is possible to prove one assertion by one method, and to come to a contrary conclusion by the other.

A matter to which we have often to allude is the rate per train mile. The cost per train mile according to Rendel is presumed to be the same, whether it be a goods or a passenger train, and there are authorities who consider that it is as correct an assumption as can be arrived at. The analysis method is to take the total expenditure, make some small deductions and then to divide this in the proportion of the gross ton mileage (freight and dead weight) of coaching traffic and goods traffic. The result is widely different, as will be seen from the following:—

Cost, per train mile, half-year ending 31st December 1882—		Coaching.	Goods.
Rendel's method	...	Rs. 2'36	Rs. 2'36
Analysis method	...	1'61	2'83

The result is that when I wish, from our statistics, to place a correct inference before you for your consideration, I hesitate which system to employ, and even feel considerable diffidence in attaching too much importance to either, for I feel that any attempt to separate expenditure between coaching and goods traffic, unless we much elaborate our accounts, can be but roughly approximate.

I think it would be well to adopt one approved method, and to abide by it when I am quoting figures for consideration, and of the two I prefer the analysis method, as we should then be at one with other lines as regards results. But I think for matters of *our own* use that we might get the approximate cost even nearer than the analysis, and I should like to revert to some such arrangement as the following:—

Abstract A.—Divide in the proportion of gross ton mileage (freight and dead weight) of coaching traffic and goods traffic.

There are two forces at work destructive of way, works, stations, &c.,—(1) wear caused by traffic (with this we will include accidents); (2) climate causes. With regard to (1), it seems fair that the maintenance and renewal should be divided in the proportion of weight passing; and with reference to (2), I would divide it half and half if we could know how much to ascribe to it, for that influence would apply equally were one description of traffic to cease to exist. But as we cannot well fix an arbitrary percentage as due to climate, the whole maintenance charges could be divided as stated above. By this means coaching traffic is slightly favored, as the coaching tons pass at a greater speed, and consequently are more destructive, and it will bear less than one quarter of climate destruction instead of one half.

But this may be exceeded.

Abstract B.—Divide by train mileage.

Although a goods train is heavier than a passenger train, it runs at less speed, and consequently the consumption of coal would not be much greater in the former case than the latter. If there is any difference in this abstract it is in the favor of goods traffic, and may be taken as a set-off to abstract A.

Abstract C.—A great deal of this is appropriated already; the remainder I would divide according to the mileage of each description of vehicle run.

Abstract D.—Divide by train mileage.

The extra attention required by passengers and the frequent stoppages of passenger trains is probably equal to the extra cost of hamallage, &c., under our present system of working.

Abstracts E and G.—After taking out the rent of leased lines, which is not a cost at all, but an incident arising from our not owning the line, and also reducing by mileage and demurrage received receipts from sale of damaged goods, I would divide the remainder by train mileage.

The result then arrived at is—

		Passenger.	Goods.
		Rs.	Rs.
<i>Abstract A</i>	...	5,16,868	13,79,680
" <i>B</i>	...	9,46,776	14,38,746
" <i>C</i>	...	4,57,347	8,94,924
" <i>D</i>	...	4,36,287	6,63,025
<i>Abstracts E and G</i>	...	2,69,078	4,08,897
		26,26,356	47,85,272

or equal per train mile to—

		Rs.
Coaching	...	1'99
Goods	...	2'39

The three results compare as under:—

		Rendel.	Analysis.	Proposed.
		Rs.	Rs.	Rs.
Coaching	...	2'36	1'61	1'99
Goods	...	2'36	2'83	2'39

Will you kindly let me have your views.

Agent's note.

I am inclined to agree with Mr. Jordan's method, but doubt if it is worth while starting a third analysis. I think it will be sufficient for all practical purposes if we use (and understand always that it is to be so) the Government analysis in all statistical returns, and discard Rendel's method entirely.

2nd January 1884.

G. A. BARNETT.

No. 449 R. T., dated the 22nd May 1884.

From—The Government of India, P. W. Dept.,
To—The Governments of Madras and Bombay, the Director General of Railways, and the Consulting Engineers to the Government of India for Guaranteed Railways.

I am directed to forward, for information, copy of a despatch from Her Majesty's Secretary of State for India, and of its enclosures, regarding a proposed change in the method recommended by the Statistical Committee, for apportioning the working expenses of railways between coaching and goods traffic for the purpose of calculating the cost of transport, and to request that the Government of India may be favored with a report on the subject by the officers of the more important railways.

2. I am also to request that in submitting the required reports, you will be good enough to have the results for the selected lines worked out according to both methods for the sake of comparison, taking the figures for the two halves of 1883.

Documents accompanying.

Secretary of State's Despatch No. 37 Ry., dated 3rd April 1884, and enclosures.

No. 2428, dated the 27th June 1884.

Endorsed by the Consulting Engineer, Calcutta.

Copy of the following letter, No. 4326, dated 21st June 1884, from the Agent, Eastern Bengal Railway Company, and enclosed communication from the Company's Auditor and Accountant, expressing his views on the proposed change in the method of apportioning the working expenses between coaching and goods traffic for the purpose of calculating the cost of transport, forwarded to the Secretary to the Government of India in the Public Works Department, in reference to his letter No. 449 R. T., dated 22nd May 1884, with the intimation that the reply of the Agent, East Indian Railway Company, to whom a copy of the letter under reference was also sent, will follow.

No. 4326, dated the 21st June 1884.

From—The Agent, Eastern Bengal Railway Co.,
To—The Consig. Engr. to the Govt. of India for Guarntd. Rys., Calcutta.

I have the honor to acknowledge the receipt of your letter No. 1999, dated the 3rd instant, covering correspondence regarding a proposed change in the method recommended by the Statistical Committee for apportioning the working expenses of railways between coaching and goods traffic for the purpose of calculating the cost of transport, and, in reply thereto, beg to submit a copy of

letter No. ^{C. D.}₈₄₃, dated 20th instant, from this Company's Auditor and Accountant, whose opinions I have the pleasure to endorse.

No. ^{C. D.}₈₄₃, dated the 20th June 1884.

From—G. L. CALDER, Esq., Auditor and Accountant, E. B. Railway Co.,

To—The Agent, E. B. Railway Co.

Your docket No. 4020, dated 11th instant.

I have very carefully considered the matter, and am of opinion that Mr. Rendel's proposed method, if adopted, will give a far closer approximation to the actual cost of working coaching and goods traffic than the other methods referred to.

The results for the Eastern Bengal railway by the proposed and present method for the year 1883 are—

		JUNE 1883.		DECEMBER 1883.	
		Coaching.	Goods.	Coaching.	Goods.
		Rs.	Rs.	Rs.	Rs.
Analysis method	...	1'78	3'12	1'76	3'23
Proposed	"	2'27	2'72	2'18	2'78

No. 3349, dated the 4th September 1884.

Endorsed by the Consulting Engineer, Calcutta.

Copy of the following Note by Captain C. H. P. Christie, R. E., Examiner of Railway Accounts, on the different methods of apportioning working expenses between coaching and goods for analysis of carrying cost, forwarded to the Secretary to the Government of India in the Public Works Department, for information, in continuation of this Office endorsement No. 2428, dated 27th June 1884.

Note, dated the 31st July 1884, by CAPTAIN C. H. P. CHRISTIE, R.E., Examiner of Railway Accounts, Calcutta, on the different methods of apportioning working expenses between coaching and goods for analysis of carrying cost.

Your endorsement No. 2000 of 3rd June 1884.—Different methods of apportioning working expenses between coaching and goods for analysis of carrying cost.

I am sorry I have so long delayed dealing with this reference; but the fact is that the matter is one that cannot be usefully treated without a good deal of consideration.

2. It seems to me that the key to the proper treatment of the question is suggested by the remarks in the two opening paragraphs of Mr. Rendel's memorandum of the 10th March. If the thing is worth doing at all, it is worth doing well and thoroughly. "Simplicity" is all very well, but excessive regard for simplicity may easily deprive these analyses of all value whatever; and I do not feel at all sure that this has not been done. As a matter of fact, as Colonel Williams points out, the sacrifice to simplicity does not save any labour worth thinking about; at the outside, the present system, as compared with the most minutely correct system that could probably be devised, would hardly do more than save the labour of one ordinary clerk for perhaps half a day in each analysis, i.e., in the analysis for each railway; but even if it were otherwise, simplicity would be dearly purchased at the sacrifice of usefulness. There

is no use in preparing analyses which are rejected as misleading, as soon as it becomes a question of applying them to some practical purpose, as the fixing of a rate. I wish to lay particular stress upon the point that the labour saved by "simplicity" is not worth a moment's consideration, because the dread of extra work is the only thing that could possibly militate against a well-considered system of *detailed* distribution.

3. Moreover, when the necessity arises for practically applying the prescribed analysis, if that analysis is rejected, some other basis of distribution has to be devised on the spur of the moment—a thing which is not easily done,—and the result probably is that the substituted system meets with as little acceptance as the other. These analyses can be of very little use unless their results meet with fairly general acceptance; and it is hardly likely that they will do this if reasonableness and correctness are obviously sacrificed to simplicity, as I think they certainly are both in the present prescribed system (new Government system) and in Mr. Rendel's system.

4. You ask me to compare the results of two methods, but which two is not clear, because there are three if not four methods in question. The best plan, however,—the best in any case,—will be to consider generally the best way of distributing the working expenses; and I will begin by considering how the different methods apply to selected items of working expenses, commencing, for convenience, with those items in which one or other of the proposed methods is most obviously and glaringly wrong. First of all, however, it will be well to make quite clear what Mr. Rendel's plan is, because in one place Mr. Rendel says, "I should take the consumption of fuel per traffic train mile," which would be absurd, and is not what he does. Mr. Rendel really takes the total consumption of fuel on passenger trains (A) and on goods trains (B), as he explains lower down.

5. Taking first the account for the half year ended 30th June 1883, let me begin with abstract B, Locomotive expenses. In this abstract the cost of fuel, including freight, is shown as Rs. 6,10,883. Now the actual distribution of this fuel between coaching and goods train is known. The train mileages are given, and at page 3 of the Locomotive Superintendent's report the consumption of fuel per train mile is given as coaching 45 lbs. and goods 52.73, and a simple calculation gives the total consumption as 79,932,645 lbs. for coaching, and 197,784,851 lbs. for goods trains, these figures being in the proportion of 0.2878 to 0.7122, in which proportion the total cost of fuel should be divided between coaching and goods, the *only* assumption which could possibly be questioned being the assumption that there is as much freight on goods fuel as on coaching fuel, and that therefore the price of the two is the same; and even this assumption might be corrected if it were worth while.

6. In the same abstract (B) the following items, *viz.*,—

	Rs.
Water	41,135
Oil, tallow, &c.	85,329
TOTAL	1,26,464

should probably be distributed in the same way as the cost of fuel. The first certainly, and the second almost certainly, would be most correctly distributed in proportion to the work done by the engines, and the best measure of this is the consumption of fuel. We have therefore three items aggregating Rs. 7,37,347 which ought probably to be distributed, Rs. 2,12,208 to coaching and Rs. 5,25,347 to goods; the actual distribution according to the several methods under

Rs.
6,10,883
1,26,464
7,37,347

consideration being as under—

System.	Basis of distribution.	Coaching.	Goods.
		Rs.	Rs.
Mr. Rendel's	Consumption of fuel	2,12,208	5,25,347
New Government	Gross ton mileage	1,60,078	5,77,269
Mr. Jordan's	Train mileage	2,36,910	5,00,437

7. Turn now to abstract C, and take the expenditure on repairs and renewals of vehicles. The *actual known* division of the expenditure is given in the abstract thus:—

	Rs.
Coaching	2,57,816
Goods	4,07,649
TOTAL	6,65,465

and yet, entirely ignoring known facts, the different systems would distribute the total variously, thus:—

System.	Coaching.	Goods.
	Rs.	Rs.
Mr. Rendel's	1,91,521	4,73,944
New Government	1,44,472	5,20,993
Mr. Jordan's (vehicle mileage)	1,49,330	5,16,135

8. Then in abstract D there are two items, *viz.*,—

	R
Handling goods (included in station staff)	1,69,037
Wagon covers, ropes, &c.	7,147
TOTAL	1,76,184

which are entirely goods charges, but which the several systems would variously divide between coaching and goods.

9. In abstract G, special and miscellaneous, there is a small item (compensation for goods lost and damaged), which is of course chargeable entirely to goods traffic, and a large item, R 2,64,720, on account of mileage of foreign stock, with regard to which, it may, I fancy, be safely assumed that quite nine-tenths of the charge was on account of goods vehicles, in which case the fair distribution would be—

	R
Coaching, not more than	26,472
Goods, not less than	2,38,248
TOTAL	2,64,720

the actual distribution according to the several rival plans being as under—

System.	Coaching.	Goods.
	R	R
Mr. Rendel's	76,186	1,88,533
New Government	57,470	2,07,249
Mr. Jordan's (train mileage)	85,054	1,79,665

The actual facts, the real incidence of the hire as between coaching and goods vehicles, could no doubt be readily ascertained and exhibited in the accounts.

10. With the exception of the last, the above are all items with regard to which it seems hardly likely that there would be any serious difference of opinion as to the proper way of distributing, several of them being indeed, wholly or partly, distributed in the account, or obviously chargeable wholly to one class of traffic. I will now consider some items, the rational distribution of which may not be so easy to settle.

11. Take first the item "station staff" in abstract D. Deducting from the total of this item the handling goods charges separately dealt with above as wholly chargeable to goods, there remains Rs. 6,52,016*—a sum so considerable that it is worth while to consider whether it could be distributed on some rational basis. It seems to me that such a basis might be found by considering the actual cost of station staff for so many passengers or so many tons of goods at those stations at which passengers and goods are dealt with by separate staffs. As my present object is not so much to arrive at an accurate result, as to indicate the means by which a fairly correct result might perhaps be attained, I will simplify the matter by considering the Howrah staff alone.

12. During the half year ended 30th June 1884, there were carried 5,963,578 passengers and 2,639,655 tons of goods; being 22,592 passengers for every 10,000 tons of goods. The traffic dealt with at Howrah, inwards and outwards, comprised 1,516,974 passengers and 1,023,216 tons of goods; the cost of the station staffs according to the authorization for the half year (column "drawn") being Rs. 4,127 × 6 for the passenger station and Rs. 19,500 × 6 for the goods station,† so that the expenses at Howrah for every 22,592 passengers and every 10,000 tons of goods were respectively Rs. 369 and Rs. 1,143 for the half year; and it would perhaps be reasonable to divide the whole cost of station staff (less handling goods charges) in the proportion of 369 and 1,143, or of 0.2401 to 0.7599.†

13. I do not of course mean to say that this would be an absolutely correct distribution. It would be more correct to get the proportion by considering the cost of passenger and goods station staffs at all stations collectively at which passengers and goods are separately dealt with. My object, however, is simply to indicate a direction in which a more or less rational basis of distribution might perhaps be sought.

14. Consider next the item "train staff" (Rs. 2,89,400) in the same abstract (D). Obviously neither gross ton mileage nor consumption of fuel affords a rational basis for the distribution of the cost of train staff. At first sight train mileage may seem a more rational basis, but it is not enough by itself. If the element of speed is to be taken into account, as it should be, in connection with wear and tear of permanent-way, consumption of fuel, water, oil, and small stores, it should also be taken into account when it tells the other way, as in the case of traffic and locomotive running staff. Passenger trains probably average all round about 20 miles an hour, and goods trains about 10 miles an hour; so that, if the staff on board at any one time were the same in the two cases, the staff required per train mile would be twice as great for goods trains as for passenger trains, and the ratio of distribution should therefore be $\frac{\text{passenger train mileage}}{\text{goods train mileage}} \times 2$. But the staff on board at any time is not the same for a goods train as for a

passenger train; it costs less. The two may be taken to be approximately as follows:

Passenger train—

1 Guard, pay	150
1 Assistant guard, or brakesman, average pay, say	25

TOTAL . . . 175

Goods train—

1 guard, average pay, say	120
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on which basis the correct ratio of distribution would be $\frac{\text{passenger train mileage}}{\text{goods train mileage}} \times \frac{1}{2}$ $\times \frac{175}{120} = (\text{for June 1883, half year}) \frac{1,776,281 \times 175}{3,750,198 \times 120} = \frac{0.2567}{0.7433}$, which makes the division of the traffic train staff charges (Rs. 2,89,400), coaching Rs. 74,289 and goods Rs. 2,15,111.

15. Similar considerations would regulate the division of the locomotive train staff charges; but in this case the staff on board is, I understand, the same for the two classes of trains, namely, one driver and two firemen. I assume here that their average pay or cost would be about the same, which may be wrong, but on this assumption the distribution ratio would be $\frac{\text{passenger train mileage}}{\text{goods train mileage}} \times \frac{1}{2} = \frac{0.1914}{0.8086}$, and the distribution, excluding charges on account of labour in yards (Rs. 36,101), would be—

	R
Coaching	1,10,542
Goods	4,67,005
TOTAL	5,77,547

16. I have excluded above charges for labour in yards, because that seems to be an item which might be more correctly distributed according to the number of engines. The actual number running on the last day of the half year (June 1883), according to table No. XII of the Revenue Account, was passenger engines 70, goods engines 379, according to which the ratio of distribution would be $\frac{0.1559}{0.8441}$ and the distribution—

	R
Coaching	5,629
Goods	30,472
TOTAL	36,101

The ratio here adopted does not differ much from that adopted for the division of the train staff (locomotive), which is probably as it should be, supposing both classes of engines to be fully employed.

17. Another large item in the same abstract (B), an item so large that it certainly should be rationally distributed, if possible, is that of "repairs and renewals of engines." There ought not to be any difficulty in keeping the accounts so as to show separately the cost of repairs and renewals of the two classes of engines, separating also repairs from renewals and showing repairs of machinery separately. In the absence, however, of proper accounts, the average number of each class of engines under repairs at any one time (table No. XII, column 11) might perhaps be taken as the basis of division, more especially as it happens that there were no renewals charged in the half year in question. The average number under repairs at any one time (column 11) is probably a better basis than the number repaired (column 7), because allowance is thereby made for the greater time taken by, and therefore presumably

the greater cost of, the more serious repairs. On this basis the ratio of distribution would be $\frac{0.1104}{0.8696}$ and the distribution—

	R
Coaching	64,920
Goods	4,32,934
TOTAL	4,97,854

But of course the better plan would be to keep the accounts of expenditure in such a way as to show the actual charges debitable to each class of traffic, whenever this is possible. On some railways it may not be possible; but on most railways goods and passenger trains are worked by different classes of engines, the accounts of which are kept separately, although not so shown in the published accounts.

18. In abstract C there are a number of minor items which might perhaps be conveniently grouped together for distribution; they are—

<i>3rd.—Cleaning carriages, wagons, &c.—</i>	R
(1) Labour	4,645
(2) Stores	29,709
<i>5th.—Unclassified expenditure—</i>	
(1) Loss on stores	28,237
(2) Carriage of revenue stores	14,188
TOTAL	76,779

All these, it seems to me, might well be distributed on the basis—whatever it may be—considered most appropriate for the distribution of the item 3rd (2) stores, including oil, grease, &c. That the vehicle mileage should be a factor in determining the distribution will probably be generally admitted; that was the basis of the original Government system, and is that now proposed by Mr. Jordan for re-introduction; but it seems to me that, strictly speaking, speed, as affecting the consumption of oil and grease, should enter into the calculation, and the introduction of this factor would at the same time ensure the appropriation to “coaching” of its undoubtedly larger relative share of the cost of cleaning, &c. The ratio $\frac{\text{passenger vehicle mileage} \times \text{passengers train speed}}{\text{goods vehicle mileage} \times \text{goods train speed}}$ or, say, $\frac{31,968,661 \times 2}{113,922,316 \times 1} = \frac{0.2656}{0.6334}$, might therefore be adopted, making the distribution—

	R
Coaching	28,147
Goods	48,632
TOTAL	76,779

19. The item “fires, lights, water, and general stores for carriages, &c.” (R70,185) in abstract D, is one which, if it could be accurately distributed, would, I think, fall almost entirely on coaching traffic. I am inclined to think the best plan would be to keep the account in such a way as to separate running expenses and station expenses from office expenses as far as possible, and to appropriate the whole or nearly the whole of the two former to coaching, throwing the latter in with charges of general superintendence for separate distribution. For the present I will assume that $\frac{9}{10}$ of this item should go to coaching and $\frac{1}{10}$ to goods.

20. In the same abstract (D) the charges for collection and delivery of goods, &c., when there are any, will generally be debitable to parcels, *i.e.*, coaching traffic.

21. I now come to the abstract which is not only the most important, on account of the large amounts involved, but is probably also the most difficult to deal with on a rational basis, on account of the absence of any direct connection of any of the charges with either class of traffic; this is abstract A maintenance of way, works, and stations. The principal item in this abstract is the cost of maintenance and renewal of permanent-way, to which should be added the charge for carriage of revenue stores and loss on stores, making altogether R27,60,475. I certainly think that in dealing with this particular item the element of speed, as affecting the wear and tear of certain parts of the permanent-way, should be taken into account; and I think that this can best be done by having the distribution partially at any rate on the consumption of fuel, as being the best measure both of the work done by the engine and of the work done by the way on which the engine works. But inasmuch as there are influences at work for wear and tear which are quite independent of the direct work of resistance to the engine, &c., I am inclined to think that passenger traffic would be unduly weighted if full effect were given to the factor of speed as desired by Mr. Rendel. I think it would probably be fairer to strike a mean between the two plans, distributing half the amount according to gross ton mileages, and the other half according to consumption of fuel. On this basis the distribution would be—

	R
Coaching	7,06,179
Goods	20,91,126
TOTAL	27,97,305

22. In dealing with the next item, 3rd (1) repairs of bridges and tunnels, the element of weight should probably be considered, but I question whether it is necessary to take speed into account also, because the speed of passenger trains is generally reduced on approaching bridges, and I would distribute on the basis of gross ton mileage simply, thus—

	R
Coaching	21,227
Goods	76,548
TOTAL	97,775

23. Then comes a group of items, as per margin, in connection with which

	Rs.
3rd (2).—Repairs, miscellaneous	80,407
4th.—Repairs of stations and buildings	2,61,919
6th.—New minor works	71,012
7th (1).—Plantations	9,668
TOTAL	4,23,006

that train-mileage affords on the whole the fairest basis of division, and I would distribute them accordingly thus—

	R
Coaching	1,35,912
Goods	2,87,094
TOTAL	4,23,006

and on the same basis—train mileage—I would distribute the remaining item, aggregating Rs. 61,586 in abstract G, special and miscellaneous.

24. A reference to the abstract statement marked A, which is attached to this note, shows the extent to which the items of the several abstracts have so far been distributed on a more or less rational consideration of the circumstances remain to be distributed, namely,—

	R
A. Maintenance of way and works	4,27,807
B. Locomotive expenses	2,68,624
C. Carriage and wagon expenses	67,368
D. Traffic expenses	3,17,417
E. General charges	3,43,764
TOTAL	14,24,980

These sums represent almost entirely supervising charges, or charges which may be fairly considered incidental to the supervising charges; and it seems to me that the fairest way of dealing with supervising charges is to distribute them in proportion to the cost of the work supervised. I should therefore distribute the balance of each of the four abstracts (A to D) in the same proportion in which the aggregates of the other charges in that abstract have been already distributed; and finally distribute general charges over the whole in the proportion of the aggregate results, thus:—

Abstract.	RESULT OF DETAILED DISTRIBUTION UP TO PARAGRAPH 23.*		Fraction for distributing supervising charges.	
	Coaching.	Goods.		
	R	R		
A	8,63,318	24,54,768	.2602	.7398
B	3,93,299	14,55,549	.2128	.7872
C	2,85,963	4,56,281	.3853	.6147
D	2,94,005	8,93,780	.2475	.7525
G	46,259	2,83,103	No such charges.	
TOTAL	18,82,844	55,43,481	.2535	.7465

the final ratio ²⁵³⁵/₇₄₆₅ being that for the distribution of general charges, abstract E. 25. The attached abstract statement marked C shows in detail the results of the distribution of the charges for the half year June 1883, both according to the procedure of this note, and according to the three plans under consideration, the general results being as under:—

System.	DISTRIBUTION.	
	Coaching.	Goods.
	R	R
Mr. Rendel's	25,47,405	63,03,900
Mr. Jordan's	23,75,149	64,76,156
Mine	22,42,984	66,08,321
Government (new)	19,21,619	69,29,686

* See abstract statement marked B.

Mr. Rendel's system weights coaching traffic most severely, and the Government plan least severely, the other two results lying between the two extremes.

26. It seems to me to admit of little doubt that the results of Mr. Jordan's plan—which is practically the same as the old Government plan—are more correct than the results of either Mr. Rendel's or the new Government plan, being to some extent at any rate based on the separate consideration of different classes of charges; and, without pretending that the principle of distribution adopted by myself in this note is, as regards every single item, the most correct that could be adopted, I do think that my plan, based as it is on a still more detailed consideration of individual items, is likely to be even more correct than Mr. Jordan's. Further discussion would no doubt bring out better ways of dealing with many items, and would bring to light probably other cases in which some little modification or elaboration of the accounts would admit of the separate exhibition of items (now lumped together) which require to be separately dealt with.

27. Whether the game is worth the candle is another question. If a reliable analysis, which would meet with fairly general acceptance, is a real *desideratum*, then it is certainly worth while to take some trouble to get it; and as a matter of fact the extra trouble involved in a detailed analysis is not worth a moment's consideration.

28. Mr. Rendel claims for his system "that it is at once the most simple and the most scientific;" and of the Government plan that it "omitting, as it does, all considerations but gross weight, is clearly wrong in principle." Seeing that in both systems the plan is to apply one uniform ratio to all items alike without the slightest consideration of the circumstances on which depends the more or less of the items, I do not see in what the greater simplicity of Mr. Rendel's system consists. Nor do I understand how any system can be considered scientific which does not proceed on a careful consideration of individual items of charge, so far as they are separable and susceptible of rational distribution. If it is right—and I think it is—to take into account the influence of speed, then it is right to allow for the fact that if speed tells against coaching traffic in the matter of fuel, wear and tear of permanent-way, and a few other items, on the other hand it tells against goods traffic in the matter of train staff. Surely it cannot be scientific to distribute, between the two classes of traffic, charges which are notoriously debitable to one class only; or to distribute charges any way in disregard of known facts.

29. Mr. Rendel would perhaps argue, as he does with regard to shunting, that the low speed of goods trains, so far as it is due to stoppages at stations, is to a great extent attributable to the necessity of getting out of the way of passenger trains, and that any resulting excess of cost should be charged coaching traffic. But that is hardly fair whether as regards speed or shunting. A goods train runs—apart from stoppages—at a very low speed, because it is economical; a passenger train runs at a considerable speed because on the whole it pays, and is desirable. If the goods train runs at a low speed for the advantage of goods traffic, it must be content to get out of the way of the faster passenger train, and to set the gain by low speed against the loss by stopping.

30. Mr. Rendel lays stress on the close agreement between his results and those of Mr. Jordan; but it will be seen that when the two systems are applied to the East Indian Railway figures for the June 1883 half year, the results diverge very considerably. The fact is that any such agreement is, and must be, altogether accidental, and no conclusion whatever can be drawn from it.

31. There is one other point to which I would invite attention, and that is the expediency of basing these analyses on the results of much longer periods than a single half-year. Rates are not made half-yearly. Results arrived at on the basis of the facts of separate half-years will probably vary very considerably from half-year to half-year; and an average struck on the results of several half-yearly analysis will not be the same as, and may differ considerably from, results calculated on the basis of the aggregate facts of a succession of half-years taken collectively. I am inclined to think the analysis of carrying cost would be mere valuable if it were based on the collective results of a period of not less than four or five years—eight or ten half years.

A.

Statement referred to in paragraph 24 of Note showing extent of distribution on detailed consideration of the circumstances of individual items.

DESCRIPTION OF THINGS.	Paragraph of Note.	Engineering.	Locomotive.	Carriage and Wagon.	Traffic.	General.	Special and Miscellaneous.
B.—Cost of fuel, including freight	5	...	6,10,883	...	...	...	...
Water	6	...	41,135	...	...	...	...
Oil, tallow, and other stores			85,329	...	...	...	...
C.—Repairs and renewals of vehicles	7	...	...	6,65,465	...	...	...
D.—Handling goods (part of station staff)	8	...	...	...	1,76,184	...	...
Wagon covers, ropes, &c.					...	...	...
G.—Mileage of foreign stock	9	...	...	...	...	...	2,64,719
Compensation for goods lost and damaged							3,056
D.—Station staff (less handling goods charges)	11	...	...	...	6,52,016	...	...
Traffic train staff	14	...	...	...	2,89,400	...	...
Locomotive running expense	15	...	5,77,547	...	...	...	...
Labor in locomotive yards	16	...	36,101	...	...	...	...
Maintenance and renewals of locomotive engines, &c.	17	...	4,97,854	...	...	...	...
C.—Cleaning carriages and wagons	18	...	...	34,354	...	...	...
Unclassified expenditure				42,425	...	...	...
D.—Fires, lights, water, and general stores for carriages, &c.	19	...	...	...	70,185	...	...
A.—Maintenance and renewal of permanent-way, plus carriage of stores and loss on stores minus stores returned to stock	21	27,97,305	...	...	...	...	...
Repairs of bridges and tunnels	22	97,715	...	...	...	...	...
3rd (2), repairs, miscellaneous; 4th, repairs of stations and buildings; 6th, new minor works; and 7th (1), plantations	23	4,23,006	...	...	...	...	...
G.—Special and miscellaneous charges not distributed above	23	...	...	...	...	...	61,586
Total distributed up to paragraph 23 of Note	...	31,18,086	18,48,849	7,42,244	11,87,785	...	3,29,361
Balance remaining to be distributed.	...	3,51,708	2,68,624	67,368	1,93,506	3,43,764	...
supervising charges.	...	...	...	...	...	...	...
other charges, net, i. e., after deducting set-offs.	...	76,099	...	...	1,23,911	...	...
Total distributable as per progressive number 18 of analysis	...	37,45,893	21,17,473	8,09,612	15,05,202	*3,43,764	3,29,361

* After deducting from General Charges the amount of Electric Telegraph and Sundry Earnings.

B.

Items distributed up to para. 23 of Note, collected by Abstracts.

	Basis of Distribution.	Coaching.	Goods.
		R	R
A.—Maintenance and renewal of permanent-way, including carriage of and loss on stores, less value of stores returned to stock	m	7,06,179	20,91,126
Repairs of bridges and tunnels	n	21,227	76,548
Repairs, miscellaneous, repairs of stations, &c., new minor works, and plantations	b	1,35,912	2,87,094
Total		8,63,318	24,54,768
B.—Cost of fuel, including freight	a	1,75,812	4,35,071
Water, oil, tallow, &c.	a	36,396	90,067
Locomotive running expenses (less labour in yards)	k	1,10,542	4,67,005
Repairs and renewals of engines, &c.	j	64,920	4,32,934
Labour in locomotive yards (fuelling, cleaning, &c.)	i	5,629	30,472
Total		3,93,299	14,55,549
C.—Repairs and renewals of vehicles, &c.	e	2,57,816	4,07,649
Cleaning carriages, &c., and unclassified expenditure	k	28,147	48,632
Total		2,85,963	4,56,281
D.—Handling goods and wagon covers, ropes, &c.	e	...	1,76,184
Station staff (less handling goods charges)	g	1,56,549	4,95,467
Traffic train staff	h	74,289	2,15,111
Fire, lights, and general stores for carriages, &c.	l	63,167	7,018
Total		2,94,005	8,93,780
G.—Mileage of foreign stock	f	26,472	2,38,248
Compensation of goods lost or damaged	f	...	3,056
Special and miscellaneous charges, not already distributed above.	b	19,787	41,799
Total		46,259	2,83,103
GRAND TOTAL		18,82,844	55,43,481

Comparative Statement showing different methods of distributing, between Coaching and Goods, the charges in East Indian Railway Revenue Account for half year ending June 1883.

DISTRIBUTION ACCORDING TO DIFFERENT SYSTEMS.												
BASIS OF DISTRIBUTION G.			AS SUGGESTED IN THIS NOTE.		MR. RENDEL'S.		NEW GOVERNMENT.		MR. JORDAN'S.			
Description of Items.			AS INDICATED BY REFERENCES AGAINST EACH ITEM.		CONSUMPTION OF FUEL.		GROSS TON MILEAGE.		AS INDICATED BY REFERENCES AGAINST EACH ITEM.			
			Rais of distribution.	Coaching.	Goods.	Coaching.	Goods.	Coaching.	Goods.	Coaching.	Goods.	Rais of distribution.
B—Cost of fuel including freight	.	.	a	R	1,75,812	4,35,071	R	1,32,623	R	1,97,277	R	b
B—Water, oil, tallow, &c.	.	.	a		30,396	90,008		4,78,260		40,633		b
C—Repairs and renewals of vehicles, &c.	.	.	c		257,816	4,07,049		5,20,993		1,40,310		b
D—Handling goods, and wagon covers, rope, &c.	.	.	e		...	1,70,484		1,41,472		56,008		d
G—Mileage of foreign stock	.	.	f		26,472	50,706		38,250		85,054		b
G—Compensation for goods lost or damaged	.	.	f		...	2,38,248		57,470		932		b
G—Station staff (less handling goods charges)	.	.	e		...	3,056		603		2,074		b
D—Traffic train staff	.	.	g		1,56,549	4,95,467		1,41,553		2,09,493		b
B—Locomotive running expenses (less labour in yards)	.	.	h		74,289	2,06,111		2,26,571		92,974		b
B—Labour in locomotive yards (fueling, cleaning, &c.)	.	.	h		1,10,542	4,07,003		4,52,102		1,85,506		b
B—Repairs and renewals of engines, &c.	.	.	i		5,929	25,711		7,818		11,590		b
C—Cleaning carriages, &c., and unclassified expenditure	.	.	j		64,920	1,43,282		1,08,084		3,37,894		b
D—Fires, lights, and general stores for carriages, &c.	.	.	k		28,147	48,032		60,110		17,229		b
A—Maintenance and renewal of permanent-way, including carriage of, and loss on, stores, less value of stores returned to stock	.	.	f		63,107	7,018		15,237		22,550		b
A—Repairs of bridges and tunnels	.	.	l		7,06,179	20,01,126		19,92,241		6,07,295		m
A—Repairs miscellaneous, repairs of stations, &c., new minor works, and plantations	.	.	m		21,227	76,548		69,635		21,227		m
G—Special and miscellaneous charges not already distributed above	.	.	b		1,35,912	2,87,094		3,01,265		91,835		m
	.	.	b		19,787	41,709		43,852		10,787		b
	.	.			18,82,814	55,43,481		21,17,295		19,08,400		
	.	.			1,11,315	3,16,402		1,23,123		3,34,930		
	.	.			57,103	2,11,401		92,877		54,37,916		
	.	.			78,501	2,38,836		6,62,207		2,98,746		
	.	.			87,144	2,50,020		47,979		6,31,059		
	.	.			25,957	41,411		14,626		15,117		
	.	.			22,42,084	66,08,321		63,93,900		23,75,149		
GRAND TOTAL	.	.						19,21,619		64,76,156		
			a. Ratio compounded of train mileage, estimated speed, and cost of it, on board.					b. Mean between gross ton mileage and consumption of fuel.				
			c. Actual's as per Revenue Account.					m. Gross ton mileage.				
			d. Vehicle mileage.					m. Gross ton mileage, multiplied by speed.				
			e. Known facts.									
			f. Estimate.									
			g. Relative cost of dealing with passengers and goods at Howrah station.									

a. Consumption of fuel.

b. Train mileage.

c. Actuals as per Revenue Account.

d. Vehicle mileage.

e. Known facts.

f. Estimate.

g. Relative cost of dealing with passengers and goods at Howrah station.

h. Ratio compounded of train mileage, estimated speed, and cost of staff on board.

i. Number of engines running.

k. Vehicle mileage multiplied by speed.

l. Mean between gross ton mileage and consumption of fuel.

m. Gross ton mileage.

No. 2382 G., dated the 8th September 1884.

From—G. W. MACGEORGE, Esq., Offg. Consgr. Engr. to the Govt. of India for Guaranteed Railways, Lahore,

To—The Secretary to the Government of India, P. W. Dept.

In reply to your No. 449 R. T., dated 22nd May 1884, I have the honor to forward copy of a letter, No. 7814, dated 12th July 1884, from the Agent, together with a printed report by the Auditor, Sind, Punjab and Delhi railway, on the question of the fair apportionment of the working expenses on railways between goods and coaching traffic shewing the results for the two halves of 1883, as worked out for this railway, of the various methods proposed.

2. These papers were received in this office on the 14th July, and I greatly regret that so much delay should have occurred in forwarding them. The case, however, has only just been brought before me, partly owing to my continued absence from head-quarters on inspection duty during nearly the whole month of August, and to press of work since my return.

3. I the more regret this delay because, not wishing to increase it, I am now unable to give that time and consideration to the views expressed in the able paper by Mr. Lightfoot that I should like to do.

4. I fully concur in the opinion that the division of expenditure in the proportion of the gross weight of trains only, as recommended by the Statistical Committee, is very far from being a correct approximation, and that Mr. Rendel's proposal to base the division on the power expended, taking the fuel consumed as the measure, would be much more accurate, if practically workable.

5. I believe, however, that large assumptions would have to be made in fixing the quantity of fuel really due to the working of the two classes of traffic especially in view of the large percentage of "mixed" trains run, and the uncertain proportion of the fuel consumed by the goods traffic, which is really chargeable to the coaching traffic,—so much so, as to render Mr. Rendel's system quite as liable to error as any other, if not altogether inadmissible and impossible to work.

6. Mr. Rendel, of course, admits that in any mechanical system speed must be taken into account as well as weight, and Mr. Lightfoot in his proposals has worked on this principle; the result of his calculations as regards the Sind, Punjab and Delhi railway being to show that the old equal division of true working expenses between coaching and goods traffic is probably very nearly correct.

For my own part, I believe that on Indian railways with their comparatively small difference of coaching and goods speeds, and their high percentage of mixed trains run, the old equal division contains no very great error.

8. The average gross weight of goods and coaching vehicles on the broad gauge is approximately as follows:—

	Dead weight.	Load.	
Goods	5½	+ 10	= 15½ tons.
Coaching	7½	+ 2½	= 10 "

The average proportions of speed may be taken as 2 to 3 (18 miles to 12). We have therefore—

Goods	15½	x 2	= 31
Coaching	10	x 3	= 30

} = 1 to 1.03.

If, however, we take the "moving force" instead of the "momentum," we would have—

Goods	15½	x 4	= 62
Coaching	10	x 9	= 90

} = 1 to 1.45.

9. I think the "momentum" is more correct than the "moving force," and the latter will be in far higher degree affected by the proportion of the grades, adverse to the loads on any given line; but I have had so small an opportunity of considering the question, that I hesitate to do more than express my general concurrence with the system of division advocated by Mr. Lightfoot.

No. 7814, dated the 12th July 1884.

From—The Agent, Sind, Punjab and Delhi Railway Co.,

To—The Consg. Engr. to the Govt. of India for Guaranteed Rys., Lahore.

In compliance with the request of the Government of India contained in the correspondence accompanying your No. 1433 G of 29th May 1884, I have the honor to forward 6 printed copies of the Auditor's letter No. 3721, dated 7th instant, from which it will be seen that that officer has worked out alternative calculations showing the cost per mile of working coaching and goods traffic separately for the two half-years ending December 1883.

2. To obtain the result arrived at with any degree of accuracy, I maintain that velocity must enter into the calculation as well as weight, and therefore the result obtained by Mr. Lightfoot in the first example under "additional methods for comparison with above" demonstrates more approximately the true cost of hauling each description of traffic than any of the other methods.

3. I recollect an Engineer of one of the P. and O. steamers informing me that, given a certain consumption of coal at 11 knots an hour, the consumption increased by over 33 per cent. with an accelerated speed of only 2 knots. However, this fact is one of simple calculation, and wear and tear increases in similar ratio. The same rule is applicable both to steamers and train services.

4. I believe the Auditor, in making his calculations, has accepted the average through speed of the different services, which would be better rectified by adopting the timing between stations, exclusive of stoppages, which are very considerable in the case of goods trains. This would increase somewhat the cost of the goods service over and above what is shewn by the Auditor. There would, however, remain sufficient margin in argument for reduction in goods rates; and as to the passenger service, I adhere to my policy of exercising considerable caution in lowering rates.

No. 3721, dated the 7th July 1884.

From—JABEZ LIGHTFOOT, Esq., Auditor, S., P. and D. Railway Co.,

To—The Agent, Sind, Punjab and Delhi Railway Co.

DIVISION OF EXPENDITURE BETWEEN COACHING AND GOODS.

I have carefully considered the question of division of expenditure between coaching and goods, as well as the proposals made in the correspondence sent with your No. 6346 of 7th ultimo, by Messrs. Rendel, Jordan, and Colonel Williams, R. E., and have the honor to forward herein my views upon the subject.

Present analysis imperfect for calculation of rates and fares—

1. In the first place, the figures shewn in the Analysis of revenue expenditure for any one half-year cannot be taken as a correct basis for the calculation of rates, inasmuch as there are generally items of an exceptional character, such as flood damages, loss on stores, improvements of stock, special renewals, and other matters, which are not fairly attributable to the wear and tear of the traffic of the particular period. The carriage of revenue stores is also twice included in the working expenditure—once under the several headings of departmental expenditure on wages, fuel and stores, and again in a fixed rate which is credited to the traffic earnings.

2. Again, in the case of a new railway, expenditure of the first few years on maintenance of way and rolling-stock is abnormally light; and although actual wear and tear is going on, no provision is made for it in the accounts, and the whole cost of many years will accumulate until the lapse of time may necessitate renewals.

3. Even on an old established railway, the expenditure of any particular half-year cannot be taken as actually pertaining to the traffic of the period. During a press of traffic, renewals must necessarily be postponed, as the line and stock being fully employed cannot be spared for their execution. Consequently the periods of slack traffic are always burdened with the wear and tear attributable to the heavy traffic of a preceding period.

4. To meet these contingencies, it would be necessary to insert in the analysis new sets of tables under the head of coaching and goods respectively, to shew—

The cost of working and profit, after eliminating all special items not appertaining to the fair wear and tear of the period, and, after making a sufficient adjustment in the maintenance, and locomotive and carriage and wagon abstracts, to increase or decrease the cost of repairs to such an extent as would cover a fair half-yearly charge for renewals, based upon the average life of the material.

5. The cost of hauling an unit of traffic upon such a basis might be of great service, as the lowest possible limit of charge compatible with profit could be ascertained; whereas, for assistance in the calculation of rates, the present analysis is absolutely misleading, except a compilation be made therefrom upon the average of a large number of years.

ALLOCATION OF EXPENDITURE BETWEEN COACHING AND GOODS.

6. With regard to the mode of allocation of the total working expenses between coaching and goods, it is necessary to consider the following points:—

(a)—The maintenance of the line and rolling-stock and the cost of haulage almost entirely depend upon the speed and weight of the moving load, while these matters have very little influence upon the cost of the booking and loading staff, the number of invoices and tickets issued, and many other items dependent upon the units of traffic moved.

(b)—Again, the cost of repairs to buildings, works, plant and rolling-stock is affected by variations of climate and the ravages of time; while the supervising and fixed working staff does not fluctuate in proportion to the traffic carried; these items, therefore, are not much affected either by the units moved or the speed at which they are hauled, and the only fair apportionment would appear to be in the ratio of benefit derived in the shape of gross earnings.

7. Two main sub-divisions of the revenue expenditure are, therefore, in my opinion, necessary before a correct allocation can be made between coaching and goods, viz.:—

(a)—Expenditure governed by rolling weight or momentum, such as maintenance, locomotive power, and carriage and wagon expenses.

(b)—Expenditure governed by units of traffic moved, and benefit derived, such as traffic expenses, general charges and miscellaneous expenses.

Expenditure governed by rolling weight and momentum—

8. With regard to the first sub-division, it may be observed that the only items of ordinary expenditure in abstracts A, B and C of the Revenue Account which would not be affected by the speed of the rolling weight are probably—

Repairs of buildings.

Ditto fencing, roads, and earth-work.

Conservancy of rivers.

Maintenance of plantations.

Proportion of renewals of way, works and stock, attributable to variations of climate and the lapse of time.

These items should, no doubt, be apportioned between coaching and goods in the ratio of the benefit derived or gross earnings, but as it would be very difficult to ascertain the amount of renewals attributable to climate and time, and as, moreover, the whole of the items together form a very small proportion of the total of the three abstracts, I think it is immaterial whether they are allowed to remain in the first division for apportionment, or transferred to the second.

I shall, therefore, deal with them in the first sub-division, and proceed to consider what would be the best mode of apportioning that class of expenditure between coaching and goods.

9. The basis of ton mileage of freight and dead weight, at present in force, assumes an equal cost at either high or low speed, and consequently is considered unfair.

10. Many high authorities, however, consider that this principle is as fair as any other system which can be devised.

They state that goods and coaching trains are often hauled by the same class of engine; that there is very little difference in the actual speed of coaching speed; that the delays attendant upon crossing of trains and other matters frequently necessitate in making up time as high speeds upon goods trains as upon mixed trains, and that the actual speed of goods and coaching vehicles on mixed trains is consequently equal; that the cost of fuel and wages of the train staff are very much affected by the number of hours in steam, which, in practice, is largely against the goods trains, and goes far to counterbalance the cost of the extra speed of mail trains.

11. In answer to these statements, I would remark that, if only goods trains were run, no preference could be given to coaching trains, and delays to goods steam, and the miles run at high speed for making up time, would be sensibly reduced, if not altogether avoided.

The cost of goods shunting, detentions for crossing purposes, and running at high speeds, would therefore appear to be a part of the coaching expenditure.

12. But it may be argued that the same principle applies in the converse direction, *viz.*, that if only coaching trains were run, there would be no detention of goods trains, and no extra expenditure incurred on that account.

And as the traffic of a railway cannot be carried without running both coaching and goods trains, the excess cost of goods trains might appear to be fairly divisible between the two services.

13. Such an arrangement would no doubt be fair, provided that goods and coaching trains were despatched consecutively from stations, and no undue preference given to either.

But as such a procedure would virtually ruin the passenger traffic, while it would have very little effect, if any, upon the goods traffic, the cost giving coaching traffic a preference over goods is, in my opinion, a fair charge against the coaching expenses over and above the cost of its own actual haulage.

14. I am consequently of opinion that the present mode of division upon weight moved, irrespective of speed, is unfair; inasmuch as it does not permit of the coaching traffic being adequately charged, either for the special wear and tear attributable to the higher speed of its own trains, or for the special increased outlay thrown upon the goods trains, by giving necessary preference to coaching traffic.

15. The proposal by Mr. Rendel, to apportion the total expenditure in the ratio of fuel consumed, if practicable, is, in my opinion, a more fair basis than the one now existing, so far as Abstracts A, B and C for maintenance and haulage are concerned; but I do not consider it would be a correct basis for the allocation of the traffic expenses, general charges and miscellaneous items.

16. The basis of actual fuel consumed, moreover, would charge the goods traffic with the whole of the expenditure attributable to excess speeds and detentions consequent upon the preference given to coaching traffic, and is therefore in my opinion, unfair.

17. Again, as the same engines are to suit the requirements of the traffic frequently run upon either coaching, goods or mixed trains burning coal, wood and patent fuel, and as on some sections of the line all the traffic is carried on mixed trains, it would be a very difficult matter, if not a total impossibility, to separate correctly the quantity of fuel consumed by coaching and goods engines respectively.

18. No such record is at present kept on this railway, and the figures used by me in testing Mr. Rendel's proposals are merely approximates furnished by the Locomotive Superintendent of the coal consumed per mile on a few trains on

one section of the line, multiplied by the train mileage of each class of traffic over the entire railway.

19. The proposals made by Mr. Jordan are not, in my opinion, fair, as they assume an equal outlay for high or low speeds in the division of the maintenance abstract, and do not take into consideration the weight of the load in dividing the cost of haulage. I think, moreover, that they provide for more sub-divisions of the total outlay than are absolutely necessary.

20. I would therefore submit that the fairest basis for the allocation of the cost of maintenance and haulage would be the actual momentum of each class of traffic, ascertained by multiplying the ton miles of freight and dead weight of each class by the average timetable speed of each class of train.

21. A large portion of the increase to wages in the shape of overtime, owing to detentions of goods trains, should be charged to coaching, and this will, I think, to a certain extent, be arranged for by dividing the total outlay in the ratio of momentum.

22. No separate calculation is necessary for mixed trains, as goods should only be run at high speeds to suit and favor the coaching traffic, and the basis of calculation should, in my opinion, be the average momentum due to each class of traffic, assuming that separate trains were run at rates of speed suitable to each class of traffic.

23. For a similar reason, I have elected to take the timetable speed in preference to the rate at which the trains may actually run.

24. It is questionable whether the mode of calculation by momentum will make an adequate allowance for the expenditure attributable to high speeds, and an engineering opinion might be obtained as to whether the "moving force" should not be considered instead of the "momentum." This would be ascertained by multiplying the ton mileage by the square of the velocity instead of by the actual speed.

25. As the figures arrived at in multiplying the ton miles by the rate of speed would necessarily be very large, I would suggest that the result be stated in thousands of miles.

Expenditure governed by units of traffic moved or revenue derived—

26. With regard to the second sub-head, it would appear that the whole of the items comprised in abstracts D, E and G, with the exception perhaps of Home expenditure and Indian management, are affected by the quantity of work done and the amount of revenue derived.

27. This would best be gauged by the units of each class of traffic moved, but as it is difficult to fix an equivalent unit of goods and passenger traffic, perhaps the fairest mode of gauging the work done would be to take the number of trains running; or better still, the number of vehicles employed in the conveyance of the several units. I should therefore propose to apportion this expenditure in the ratio of loaded vehicle mileage.

28. I omit the empty vehicle mileage, as there is very little outlay on empties, except the actual return haulage, which is provided for in abstracts A, B and C, and the cost of hand-shunting and placing empty vehicles in position for loading, or for return after being unloaded, is necessarily an incidental part of the cost of the loading and unloading, and is performed by the one staff.

29. I would include coaching brake-vans in the vehicle mileage, and omit the goods brakes, as the coaching vehicles are used in conveyance of parcels and luggage, while the goods brakes are seldom, if ever, loaded.

30. The duties of the Indian and Home management may be roughly stated as follows:—

- I. To provide stores, pay staff, and keep a general check upon the expenditure of all departments.
- To account for the whole of the revenues.
- To generally supervise the traffic working.
- To divide the net revenues among the shareholders, and other general matters.

A certain portion of this expenditure relating to supervising the expenditure in abstracts A, B and C should, no doubt, be divisible in the ratio of momentum; but as this would only be a very small proportion of the total cost, it might be disregarded. The balance of the expenditure is all regulated by the work done, or the revenue derived, and I think, therefore, the whole expenditure might be very fairly allocated in the ratio of loaded vehicle mileage, and be included under the second sub-division.

SUMMARY OF NEW PROPOSALS.

31. The whole result of my proposals may be summed up as follows:—
Divide—

Abstracts A, B and C in ratio of momentum.

Abstracts D, E and G in ratio of loaded vehicle mileage.

Abstract F, Steam-boats, to be excluded from the calculation.

32. It may, perhaps, be considered necessary that my proposals should be modified so as to allow the actual cost of repairing goods and coaching vehicles to be charged to their heads, and the remainder of abstract C to be included in the 1st sub-division; but I do not think this would be fair, as a great deal of the actual cost of repairs to goods vehicles is attributable to extra wear and tear, caused by high speeds to favor the coaching traffic.

Omission or deduction of miscellaneous receipts--

33. I agree with Mr. Rendel and Mr. Jordan that repairs to staff-quarters and rent paid for offices should be reduced by the rents of dwelling-houses, and that rents of leased lines and joint stations should be omitted from the working expenditure, and this is actually done in the preparation of the half-yearly analysis of this railway.

34. The whole of the sundry receipts in abstract K, as well as telegraph earnings, are deducted from the expenditure with the exception of any excess receipts for "Rents of joint Stations," and "Mileage and demurrage of stock," over the outlay on the same account.

35. With regard to those items of miscellaneous revenue which are not at present deducted from working expenses, I would remark that rents of joint stations credited in abstract K are supposed to represent only interest on capital outlay, the proportion thereof attributable to maintenance and staff having been deducted from the various expenditure abstracts in the Revenue Account; the balance, which represents a receipt for interest on capital, should not, therefore, be deducted from the working expenditure, except to the extent of balancing payments on the same account.

36. Mileage and demurrage and hire of rolling-stock, however, are intended to cover both wear and tear of vehicles and interest on capital outlay, and I think the expenditure might be fairly reduced by the actual cost of repairs to the excess of home vehicles run upon foreign lines, ascertained by multiplying the cost of repairs per vehicle mile on the owning line, by the number of miles run by home vehicles upon foreign lines, in excess of the number of miles run by foreign vehicles on the home line; leaving the balance of receipts over and above this amount as the credit for interest on capital outlay.

37. In a similar manner, whenever the payments to other lines for mileage and demurrage exceed the receipts, the revenue expenditure should only bear the cost of repairs to the excess number of vehicles used, at the rate expended by the borrowing line, on its own vehicles, the excess charge attributable to interest on foreign capital being omitted from the working expenses.

38. In other words, the using company should only be charged as working expenses such an amount as it would have expended, provided its own vehicles had carried its own traffic, or its own capital had been expended in the construction of its own stock and buildings.

Conclusion—

39. The following statements will shew the result of the proposals made herein, as compared with the present analysis and the various other proposals, and the appendix hereto annexed will show how the figures have been arrived at.

40. From an inspection of these statements, it will be seen that in comparison with every one of the other calculations, the present Government system appears to be incorrect:

41. It will also be seen that the proposals I advocate in this letter are more in favor of the goods traffic than the proposals made by Mr. Jordan and Mr. Rendel.

42. In reviewing their several proposals I have, however, pointed out where they appear to be wrong in detail, and why I cannot recommend them for adoption.

43. Mr. Rendel's old system of treating the cost of a goods train as equal to that of a passenger train comes much nearer to the actual facts than any of the subsequent proposals, so far as the Sind, Punjab and Delhi railway is concerned; the total apportionments in the ratio of loaded vehicle mileage and momentum also come very nearly to the same result as my proposals. These apportionments commend themselves for their simplicity, and would appear to prove that the extra speed of the coaching traffic is balanced by the extra weight of a goods train; but as this may be merely a coincidence in the case of the Sind, Punjab and Delhi railway, and as I cannot support the principles by argument, I prefer to suggest the adoption of my present proposals, more specially as they involve no intricate calculations, and can readily be worked out from figures already furnished in the half-yearly analysis.

SIND, PUNJAB AND DELHI RAILWAY.

Statement shewing the cost per mile of coaching and goods trains separately during the two half-years ending 31st December 1883.

Mode of allocation.	COACHING.			Goods.			TOTAL.		
	June.	Decem-ber.	Total for year.	June.	Decem-ber.	Total for year.	June.	Decem-ber.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
<i>Methods of allocation discussed in this letter.</i>									
Present analysis, <i>vis.</i> , gross ton mileage ...	1'47	1'65	1'56	2'33	2'60	2'44			
Mr. Rendel's new method, <i>vis.</i> , coal consumed ...	1'91	2'12	2'02	2'12	2'25	2'18			
Mr. Jordan's proposal, maintenance in ratio of gross ton mileage, locomotive power, traffic expenses and general charges and sundries in ratio of train mileage, actual outlay on repairs to vehicles; remainder of abstract C in ratio of vehicle mileage ...	1'97	2'04	2'0	2'09	2'31	2'19			
Mr. Rendel's old method, <i>vis.</i> , assuming the cost of a goods and coaching train to be equal ...	2'05	2'20	2'13	2'05	2'20	2'13			
Mr. Lightfoot's proposal, maintenance and haulage in the ratio of momentum; remaining expenditure in the ratio of loaded vehicle mileage ...	2'04	2'19	2'11	2'06	2'21	2'12	2'05	2'20	2'13
Total expenditure in ratio of loaded vehicle mileage ...	2'09	2'19	2'14	2'04	2'20	2'11			
<i>Additional methods for comparison with above.</i>									
Maintenance and haulage in the ratio of moving force; remaining expenditure in the ratio of loaded vehicle mileage ...	2'51	2'60	2'56	1'83	1'92	1'87			
Total expenditure in ratio of gross earnings, coaching and goods ...	1'87	1'76	1'81	2'14	2'51	2'30			
Total expenditure in ratio of total vehicle mileage loaded and empty ...	1'49	1'70	1'60	2'32	2'55	2'42			
Total expenditure in ratio of momentum ...	2'02	2'18	2'10	2'07	2'21	2'13			

APPENDIX A.
SIND, PUNJAB AND DELHI RAILWAY.

Statement shewing how the Revenue expenditure for allocation between coaching and goods has been arrived at.

	ABSTRACTS A, B AND C.			ABSTRACTS D, E, F AND G.			Aggregate expenditure of the year.
	June 1883.	December 1883.	Total for the year.	June 1883.	December 1883.	Total for the year.	
Total expenditure as per Revenue Account Form VIII	25,02,137	20,79,265	45,81,402	10,80,282	8,78,577	19,58,859	65,40,261
Deductions as made in present analysis—							
Electric telegraph earnings, form VIII	...	...	...	11,568	12,182	...	...
Steam-boat expenses, abstract F	...	...	...	11,252	16,931	...	...
Payments to other lines, abstract G	...	...	...	2,10,264	4,423	...	...
Rents of dwelling-houses, do. K	13,578	17,372	...	8,915	8,108	...	...
Transfer fees, do.	...	...	...	1,109	938	...	...
Profit on workshops, do.	5,305	2,465	...	...	...	...	...
Unclaimed wages, do.	1,711	1,348	...	...	...	...	...
Profit on sale of stores, do.	...	...	...	590	600	...	...
Sundries, do.	...	...	...	20	4,381	...	...
	20,654	21,185	41,839	9,150	9,481	...	...
Further adjustment proposed in paras. 35 and 36 of my letter—	24,81,483	20,58,080	45,39,563	8,27,414	8,21,533	16,48,947	61,88,510
Add or deduct—Cost of repairs to vehicles owing to interchange with other lines—							
December 1883, 1,556,000 miles	...	15,108	...	...	...	...	...
Add—Excess of foreign vehicles run on Sind, Punjab and Delhi railway, vide appendix II of Analysis, at 9.71 per 1,000, vide table C of Analysis.	...	...	...	...	...	...	...
June 1883, 4,349,000 miles	38,097	...	22,989	...	...	...	22,989
Deduct—Excess of home vehicles run on foreign lines, vide appendix II of Analysis, at 8.70 per 1,000, vide table C of Analysis.	...	...	...	...	...	...	...
Net expenditure for division	24,43,386	20,73,188	45,16,574	8,27,414	8,21,533	16,48,947	61,65,521

APPENDIX B.

Statement shewing how the figures for the basis of division between coaching and goods have been arrived at.

MOMENTUM.

	Average Speed, see Appendix I of Analysis.	1,000 TON MILES FREIGHT AND DEAD WEIGHT, NOS 73 AND 109 OF ANALYSIS.			BASIS OF DIVISION.		
		June 1883.	December 1883.	Total for the year.	1,000 tons of momentum.		
					June 1883.	December 1883.	Total.
	Miles.						
Coaching	17.83	109,371	119,115	228,486	1,950,085	2,123,820	4,073,905
Goods	11.53	360,221	263,177	623,398	4,153,348	3,034,431	7,187,779
TOTAL MOMENTUM	...	469,592	382,292	851,884	6,103,433	5,158,251	11,261,684

MOVING FORCE.

	Square of speed above.	1,000 TON MILES FREIGHT AND DEAD LOAD, SEE ABOVE			BASIS OF DIVISION.		
		June 1883.	December 1883.	Total.	1,000 tons of moving force.		
					June 1883.	December 1883.	Total.
Coaching	317.90	109,371	119,115	228,486	34,770,014	37,867,718	72,637,732
Goods	132.94	360,221	263,177	623,398	47,838,104	34,986,687	82,824,791
TOTAL MOVING FORCE	...	...	...	...	82,608,118	72,854,405	155,462,523

										BASIS OF DIVISION.		
										June 1883.	December 1883.	Total.
<i>Loaded vehicle mileage—</i>												
Coaching 1,000, loaded vehicle miles, No 43 in Analysis										8,562	9,201	17,763
Goods	do.	do.	No. 95	do.						17,347	13,015	30,362
										25,909	22,216	48,125
<i>Traffic train mileage—</i>												
Coaching No. 22 in the Analysis										516,553	545,310	1,061,863
Goods	No. 90									1,072,504	768,540	1,841,044
										1,583,057	1,313,850	2,902,907
<i>Gross earnings, coaching and goods—</i>												
Coaching No. 21 in Analysis										1,743,463	1,693,013	3,436,476
Goods	No. 89	do.								4,153,124	3,410,863	7,563,987
										5,896,587	5,103,876	11,000,463
<i>Total vehicle mileage loaded and empty stated in thousands—</i>												
Coaching No. 43 in Analysis										8,562	9,201	17,763
Goods	No. 98	do.								27,671	19,465	47,137
										36,233	28,667	64,900

MR. RENDEL'S METHOD.

	JUNE 1883.		DECEMBER 1883.		BASIS OF DIVISION.		
	Pounds of fuel per mile as per Locomotive Superintendent's estimate.	Traffic train miles.	Pounds of fuel per mile as per Locomotive Superintendent's estimate.	Traffic train miles.	Total fuel consumption for the year 1883.		
					June.	December.	Total.
Coaching	38.89	516,553	36.33	545,310	20,088,746	19,811,112	39,899,858
Goods	43.13	1,072,504	38.51	768,540	46,257,007	29,596,475	75,853,572
TOTAL	...	1,589,057	...	1,313,850	66,345,753	49,407,587	115,753,340

NOTE.—This statement is merely approximate, as no separate records are kept of the consumption of engines running on goods and coaching trains.

No. 2484 G., dated the 18th September 1884.

Memo. from—G. W. MACGEORGE, Esq., Officiating Consulting Engineer to the Government of India for Guaranteed Railways, Lahore,

To—The Secretary to the Government of India, Public Works Department.

In continuation of this office No. 2382-G., dated 8th instant, forwards, for information, copy of a further communication from the Auditor, Sind, Punjab and Delhi railway.

No. 4791-A. G., dated 31st August 1884.

From—JABEZ LIGHTFOOT, Esq., Auditor, Sind, Punjab and Delhi Railway Company,

To—The Agent, Sind, Punjab and Delhi Railway Company.

[Division of expenditure between coaching and goods.]

In continuation of my letter of the 7th ultimo, on the subject of division of expenditure between coaching and goods, I have received a letter from Mr. Rendel, agreeing to the division in ratio of momentum, as proposed by me, in lieu of his proposal to divide in the ratio of coal consumed.

But he also stipulates that only one total calculation should be made instead of subdividing the expenditure in two proportions as suggested in my letter.

As the result will be very little altered by such an arrangement, I am willing to modify my proposal, to the extent of dividing the total revenue expenditure in the ratio of momentum, ascertained by multiplying the ton mileage of freight and dead weight by the average timetable speed between stations.

The following statement will shew the result of such a modification upon the transactions of the year 1883:—

Original proposal, abstracts A, B, and C. in ratio momentum—D, E and G in ratio loaded vehicle mileage.	Coaching.	Goods.
Total expenditure in ratio momentum	2'11	2'12
...	2'10	2'13

Extract from a letter, dated 5th August 1884, from A. M. RENDEL, Esq., M. I. C. E., 8, Great George Street, London, to J. LIGHTFOOT, Esq., Auditor, Sind, Punjab and Delhi railway, Lahore.

Many thanks for your paper on division of expenditure between coaching and goods.

I would accept momentum instead of coal consumption; they should come to the same thing, but let it be wholly momentum, or wholly coal consumption, and nothing else.

Let us have something settled that is reasonable; a moderate error is no matter, a great error like the present Government rule, is.

No. 1399, dated the 11th October 1884.

From—COLONEL R. C. B. PEMBERTON, R. E., Consulting Engineer to the Government of India for Guaranteed Railways, Lucknow,

To—The Secretary to the Government of India, Public Works Department.

I have now the honor to forward, for the information of Government, copy of the reply of the Agent of the Oudh and Rohilkhund Railway Company to the reference made in your No. 449-R. T., dated 22nd May 1884, on the subject of the method of apportioning working expenses between coaching and goods traffic.

2. The calculation asked for in your 2nd para. is given in para. 4 of the Agent's letter.

3. Personally, I agree generally in thinking that Mr. Rendel's proposal would give more correct results than the present system, though, for the reasons given in the Agent's 3rd para., the question does not affect the Oudh and Rohilkhund railway, whilst worked on its present system, so much as it does lines where regular trains are run for passengers only.

No. 4318, dated the 27th September 1884.

From—COLONEL J. H. JENKINS, Agent, Oudh and Rohilkhund Railway Company,
To—The Consulting Engineer to the Government of India for Guaranteed Railways, Lucknow.

I have the honor to reply to the Government of India No. 449-R. T., a copy of which was received under your docket No. 770 of the 2nd June, and, in expressing my regret at the delay which has occurred in the matter, to explain that, owing to the pressure of work which has fallen on the Auditor since his return from leave, the information required from his office has only this day been received.

2. There seems no doubt that the objections made to the method of apportionment at present employed in the analysis of working are well founded, as the division of the expenditure under all heads in the proportion of the gross ton mileage, without reference to any other consideration, unduly favors coaching traffic, while it places the cost of transport of goods unnecessarily high. My own opinion is that the mode of division prescribed in the old form of analysis, viz., maintenance of way and works expenditure in the ratio of the gross ton mileage, locomotive expenses, general charges, and special and miscellaneous expenditure in the ratio of the train mileage, and carriage and wagon and traffic expenses in the ratio of the vehicle mileage, is as close an approximation as can be obtained, and I should be in favor of its being reverted to. It is not clear why the Statistical Committee gave the preference to the mode of division on the basis of the gross ton mileage. It is true it has the appearance of being much simpler, but, as pointed out in the Note by Colonel Williams, very little extra labor is necessitated by the division of the expenses in the three portions instead of in the gross.

3. With regard to the new method of division, now proposed by Mr. Rendel, on the basis of the fuel consumed for passenger and goods trains, respectively, it appears that the results fairly correspond with those arrived at on the old Government system; and I think the method is, on the whole, a fair one, especially in cases where the consumption of fuel for passenger and goods trains can be kept quite distinct. In the case, however, of a line like this, on which very few purely passenger trains run, the system would probably not work so satisfactorily, as the consumption of fuel put down for passenger trains would, in reality, be the proportion of the mixed trains' consumption that pertains to the passenger traffic, and the result arrived at, as the cost per passenger train mile, would consequently be the cost per mile of mixed trains; while the cost arrived at per goods train mile would be the average of the purely goods trains, and the goods traffic proportion of the mixed trains taken together. However, I think that, notwithstanding this, the system would give more correct results than the one at present in force, and it does not appear to be of much importance which of the two—Mr. Rendel's new or the old analysis system—is adopted.

4. The cost per train mile for the railway according to all four methods has been worked out for the two halves of 1883, and the figures are given below:—

	1ST HALF OF 1883.		2ND HALF OF 1883.	
	Passengers.	Goods.	Passengers.	Goods.
	Rs.	Rs.	Rs.	Rs.
(1) Mr. Rendel's old system	1'78	1'78	1'80	1'80
(2) Mr. Rendel's new system	1'68	1'84	1'71	1'86
(3) Old analysis system, practically same as Great Indian Peninsula Auditors.	1'75	1'86	1'76	1'90
(4) ditto ditto	1'67	2'14	1'69	2'15

5. In addition to the basis of apportionment, the present analysis system differs from the old one, and also from Mr. Rendel's, in the matter of the deductions to be made from the working expenses prior to the apportionment being made. Mr. Rendel deducts telegraph and all sundry earnings, and this was practically done under the old analysis system; but, under the present system, the receipts from foreign lines for mileage and hire of rolling-stock in excess of the payments made on those accounts are not deducted from the amount of working expenses. Presumably the Statistical Committee in coming to this conclusion took the view that the excess receipts on these accounts consisted entirely of profit which should not affect the working expenses; but it seems doubtful whether this is correct, as a line like the Oudh and Rohilkhund, which derives considerable sums from the mileage of its stock over foreign lines, has to keep up a larger wagon stock than is required for its own traffic, and has also to incur increased expenditure in maintaining that larger stock. It is clear, therefore, that a portion at any rate of the receipts should be taken in reduction of the expenditure, and as it is not practicable to say what portion, it is simpler to deduct the whole as is done under Mr. Rendel's system.

No. 568-T, dated the 24th October 1884.

Endorsed by the Director General of Railways.

Forwarded, in original, to the Secretary to the Government of India, Public Works Department, for information.

No. 305 D. G. R., dated 27th June 1884.

From—MAJOR G. F. O. BOUGHEY, R. E., Manager, Indus Valley and Kandahar state railway,
To—The Director General of Railways.

In reply to your No. 205 T., dated 2nd instant, I have the honor to enclose a note by myself on the division of expenses between coaching and goods.

2. The figures for this line for the two halves of 1883 will be found in para. 6 of my note, but I regret that, for the reason given in para. 8 of my note, it has not been possible to work them out according to Mr. Rendel's method.

Note by Manager, Indus Valley and Kandahar state railway, on the division of expenses between coaching and goods,—dated 6th June 1884.

The old Government system divided the expenses very nearly on a train mileage basis, but charged coaching with a little less and goods with a little more than on a strict train mileage division, chiefly because maintenance of way and works was divided on a ton mileage, and traffic expenses on a vehicle mileage, basis.

This was, I think, with reason, objected to, as unduly favoring the goods traffic. See Major Sargeant's note at page VIII, appendix of Statistical Committee's report, 1880.

2. The present division on a basis of gross ton mileage is, I think, with equal reason now objected to, as unduly favoring the coaching traffic. Absolute accuracy is quite unattainable, but the truth clearly lies between the two.

3. Mr. Rendel's system both in the theory of division on the consumption of fuel and in the results obtained from it, approaches too nearly to a pure train mileage division to commend itself to me. The theory is, I think, imperfect, for many important expenses have no relation to the power employed, and as we should get the maximum effect out of an engine by using the same power to drive a light train rapidly or a heavy train slowly, the result should be, if our working were perfect, to show a strict train mileage division. The variations

from this, which are obtained in practice by working out the figures for different half-years, would therefore seem to be more due to variations in the maximum effect got out of our engines than to any real difference in the cost of dealing with coaching and goods traffic, respectively.

4. The cost of dealing with traffic is clearly influenced both by the ton mileage and the train mileage. I therefore propose to divide the total expenses both by train mileage and by ton mileage, and to take a mean between them. If we could assign the exact preponderance to be given to ton mileage and train mileage respectively, we should arrive at a correct result; but as this is impossible, we may give each an equal share, and arrive at a fairly good result.

5. I have worked out a good many figures for different lines, and find that on this plan they give results very near those of the Great Indian Peninsula railway Auditor's plan. Taking those given in the printed papers, the figures representing the cost of a coaching and goods train mile are for—

East Indian railway, 1st half of 1882.

	Coaching.	Goods.
By ton mileage	1'12	1'87
„ train „	1'63	1'63
„ my proposal, mean of ton and train mileage	1'38	1'75
„ Great Indian Peninsula Auditor ...	1'41	1'80
„ Mr. Rendel's new method	1'43	1'68

Great Indian Peninsula railway, 2nd-half of 1882.

	Coaching.	Goods.
By ton mileage	1'61	2'83
„ train „	2'35	2'35
„ my proposal, mean of ton and train mileage	1'98	2'59
„ Auditor's Great Indian Peninsula ...	1'99	2'39

6. The figures for this line for the two-halves of 1883 are as follows:—

Indus Valley and Kandahar state railway, 1st-half of 1883.

	Coaching.	Goods.
By ton mileage	1'30	1'77
„ train „	1'69	1'69
„ my proposal, mean of ton and train mileage	1'50	1'73
„ Auditor's Great Indian Peninsula ...	1'75	1'68
„ Mr. Rendel's	Consumption of fuel not recorded separately.	

Indus Valley and Kandahar state railway, 2nd-half of 1883.

	Coaching.	Goods.
By ton mileage	1'63	2'23
„ train „	2'11	2'11
„ my proposal, mean of ton and train mileage	1'87	2'17
„ Auditor's Great Indian Peninsula ...	2'25	2'07
„ Mr. Rendel's	Consumption of fuel not recorded separately.	

The Great Indian Peninsula railway Auditor's system shows exceptionally heavy charges against coaching. This is due to special reason, viz., that very heavy renewals have had to be done in these two half-years to the old coaching stock originally purchased for this line, and this is charged directly to coaching. The propriety of doing this is discussed in the next paragraph.

7. I think my proposal is the simplest, and by giving an equal influence to ton and train mileage, approaches as near to accuracy as is possible. I do not

think it is advisable to separate and charge the only known item, *viz.*, repairs of coaching and goods vehicles, to coaching and goods, respectively. This has an appearance of accuracy which I think it is desirable to avoid, when the remaining items are not charged with the same accuracy. And it is, I think, delusive for the following reason: in one half-year heavy repairs of one kind of stock may be undertaken, and of the other kind in another half year. Thus we get a fluctuation in the cost of dealing with the two kinds of traffic, which is apparent but not real, which had much better be avoided, and which is due to a half-year being too short a period in which to correctly allocate the expenditure on these repairs.

8. All the trains on this line are practically mixed trains, the light mail trains having, say $\frac{2}{3}$ rd coaching and $\frac{1}{3}$ rd goods vehicles, and the mixed trains, say, $\frac{1}{3}$ rd coaching and $\frac{2}{3}$ rd goods vehicles. As the coaching and goods service is so intermixed, there would be some extra expense in keeping the record of consumption of fuel distinct for the mixed and goods trains, which are to some extent worked by the same engines, and even then the separation between coaching and goods of the fuel consumed by mixed trains would have to be made on an arbitrary, probably a ton mileage basis. This is a further objection to Mr. Rendel's method, so far as the circumstances of this line are concerned.

No. 3466, dated the 16th July 1884.

From—MAJOR R. A. SARGEANT, R.E., Offg. Manager, Punjab Northern state railway,

To—The Director General of Railways.

With reference to your letter No. 205, dated 2nd June 1884, regarding a proposed change in the method of apportioning, for statistical purposes, the working expenses between coaching and goods, I have the honor to forward papers giving the opinions of the Traffic Superintendent and Examiner of Accounts on the subject.

It will be observed that the proposal to divide expenses in the ratio of fuel consumed could not be carried out on this line owing to the bulk of the traffic being worked by mixed trains—a difficulty which Mr. Rendel does not appear to mention.

In my opinion, the gross ton mileage system is the most suitable for this line, and I think this view is supported by the figures given in table No. 1 prepared by the Examiner of Accounts.

No. 13493, dated the 14th July 1884.

From—The Traffic Superintendent, P. N. state railway,

To—The Manager, Punjab Northern state railway.

Your No. 2831 of 7th June 1884, *re* proposed change in the method of apportioning the working expenses of coaching and goods traffic for calculating the cost of transport, &c., &c.

With reference to the above, I have the honor to return the papers sent with it, and to remark we are not in a position to show the results worked out according to the two methods as required by the Secretary to the Government of India, Public Works Department, as the locomotive department of this railway cannot keep separate accounts of the fuel used for passenger and goods trains, because the trains are worked on the "First in first out" system, as there are not a sufficient number of goods trains running to have a certain number of engines set aside for working goods trains only, and a driver, when he returns may have to go out with a goods, a mixed, or a mail train, according to the time he came in.

2. The Locomotive Superintendent of the Sind, Punjab and Delhi railway, however, has kindly sent me a statement showing the locomotive expenditure on that line, under the heads in which actuals are obtainable, *viz.*, fuel, wages and

running stores; and if the results on other lines are similar, I hardly think that the extra speed can materially affect the cost of the Locomotive department in working those trains, so long as the majority of trains run are goods trains.

3. What the difference in the wear and tear of the permanent-way is in running, say, 20 coaching vehicles, the gross weight of which when loaded is 10 tons each, at 25 miles an hour; and of running 40 goods vehicles, the gross weight of which is 15 tons each, at $12\frac{1}{2}$ miles an hour, I have not the technical knowledge to say; but if there is any difference, I should think that some allowance could be made, and main head 2 of abstract A could be divided between passenger and goods traffic accordingly. With this exception, it would be difficult to suggest any other division of abstract A than on the gross ton mileage.

4. With regard to abstract B, the figures given by the Locomotive Superintendent of the Sind, Punjab and Delhi railway shew, I think, that fuel ought to be divided on vehicle mileage, and the rest of the locomotive expenses on train mileage.

5. Abstract C.—I agree with the Great Indian Peninsula railway Auditor that after appropriating those charges which can be divided between goods and coaching traffic, the remainder could be divided upon the description of the vehicles run.

6. Abstract D.—Except in the case of the train staff, when the actuals on most railways can be accurately ascertained, and debited to goods or coaching, because passenger guards, as a rule, are a separate and higher paid class of men than the goods guards, I do not think the traffic expenses can very well be better divided than on train mileage. The cost of clerks kept at the larger stations, like goods clerks, booking clerks, ticket collectors, &c., who do either goods or coaching work, and never both, might be kept separate, and debited to the particular traffic they are specially employed for.

7. Abstracts E and G might also be fairly divided on train mileage.

8. There is still one item—and a most important one—which should be taken into consideration in making comparisons, and that is the gradients; and I think this could be done by defining the term train in a train mile. For instance, while on this line the average load that could be hauled all over the line by one engine at 12 miles an hour is 25 loaded wagons, weighing 16 tons each, and the average maximum load that can be hauled by one engine over this line at 25 miles an hour is 20 loaded coaches, weighing 11 tons each, on another line an engine would be able to take 40 wagons, weighing 16 tons each, or 25 coaches, weighing 11 tons each; consequently comparisons made between two such lines on train mileage are most misleading, and do not give one an opportunity of forming an idea as to whether the extra cost of working of the train on the line with the heavy gradients is entirely due to the gradients, or other causes, unless the trains of the two lines are known quantities, in the train mileage.

It is certainly necessary to avoid too much elaboration in preparing statistics of the details of working, but every care should be taken to have sufficient information for the officers in charge of lines to accurately estimate the cost of working a full train load of passengers or a full train load of goods traffic, so that they could recommend alterations in the rates with more confidence than they can now.

No. 2467-G., dated the 20th July 1884.

From—The Examiner of Accounts, P. N. state railway,

To—The Manager, Punjab Northern state railway.

I have the honor to acknowledge the receipt of your memorandum No. 2831, dated the June 1884, with enclosures, in which you ask for a report on certain proposals of dividing the working expenses of railways between coaching and goods traffic, so as to arrive at the true cost of each kind of traffic, and also that

division of the working expenses of this railway for 1883 according to the several methods may be compared. The knowledge that is wanted is the actual cost of working a goods train or a coaching train one mile; or, in other words, how are coaching train miles to be reduced to goods train miles, or what portion of the working expenses is due to coaching traffic, and what to goods. Unfortunately this information, which is of importance in fixing the rates and fares of goods and coaching traffic, respectively, can only be known approximately; therefore the thing to be determined is, how, and by what method, shall we get the best approximated result.

2. There are five methods for arriving at the desired result: (1) the method at present in use, called the new Government method, which divides the working expenses in the proportion of gross ton mileages. Mr. Rendel—and I suppose Mr. Jordan agrees with him in this—thinking that by this method untrue results are obtained, proposes a method which he says is the most simple and scientific of all the methods in use and proposed; this statement will be discussed later on (*vide* paragraph 6); (2) of dividing the expenses between goods and coaching respectively. Jordan's method is (3) to divide abstract A of the Revenue Accounts in the proportion of the fuel consumed by goods and passenger engines, re-counts in the proportion of gross ton mileage, abstracts B, D, E, G, in the proportion of train mileages, after making certain deductions from abstracts E and G, and abstract C, where amounts are not already appropriated, in proportion of vehicle mileage; (4) the old Government method, which is said to approximate more nearly to Mr. Jordan's than to the others, though the results do not bear this out; and (5) Rendel's old method, which divides the expenses on the supposition that a passenger train costs the same as a goods train.

3. In statement No. 1, which accompanies this report, will be found the working expenses of the two halves of the year 1883, divided between coaching and goods traffic according to the old and new Government, Jordan's, and Rendel's old methods. The results could not be given by Rendel's new method, as on this line particular classes of engines are not kept for particular classes of traffic, and no account, therefore, can be kept of the consumption of fuel by engines of passenger and goods trains respectively; but as on this line the largest proportion of train mileage is mixed,—being in the year 1883, 700,693 train miles out of a total mileage of 962,746, and during the same period only 11,866 passenger train miles were run,—the new Government method must be, according to Mr. Rendel, as good as his own new method, as will be attempted to be shewn further on—*vide* paragraph 7.

4. The cost of a coaching and goods train for the first half of 1883 is nearly the same by Jordan's and the new Government methods, being 2.52 and 2.65 against 2.56 and 2.62 for coaching and goods, respectively; the difference being due to the coaching portion of abstracts B, D, E and G being Rs. 306 greater, and abstract C, Rs. 13,819 less, in Jordan's than in the new Government method. The same methods for the last half of 1883 give the figures 2.30 and 2.60 against 2.19 and 2.71 for coaching and goods, respectively; and the difference, which is here very large compared with the difference in the figures of the first half, is due to the coaching portion of abstracts B, D, E and G being larger by Rs. 43,127 and abstract C less by Rs. 16,513 in Jordan's than in the new Government method (see statement 2). This agreement and difference in the first and last half of the year, respectively, show how little ground Mr. Rendel had for his conclusion, that "the practical agreement between (2), (3), and (4) is, I think, alone an argument of condemning (1)." But to proceed. This agreement and difference in the first and second half-year, respectively, is caused by the coaching gross ton and train mileage being greater than the goods gross ton and train mileage in the first-half; whilst in the second-half the coaching gross ton mileage, and the coaching train

1st half.				
Gross ton mileage	{ Coaching	...	...	51,424 352
	{ Goods	...	...	52,518,394
Train mileage	{ Coaching	...	...	239,828
	{ Goods	...	...	230,097
2nd half.				
Gross ton mileage	{ Coaching	...	...	51,124 262
	{ Goods	...	...	64,243,848
Train mileage	{ Coaching	...	...	248,817
	{ Goods	...	...	244,004

ton mileage is less than the goods gross ton mileage greater than the goods (see margin).

5. It is difficult to say which method gives the most correct result. There is nothing *a priori* why, say, abstract B or D is not as correctly divided between coaching and goods in the proportion of gross ton mileage as train mileage, yet it is evident what a difference it makes, and though the results by both methods may be wrong, it is certain they both cannot be right; how then is a correct division to be arrived at? Considering the great difference in cost between the two classes of traffic that sometimes results from using the new Government method, doubts must arise whether the method is correct, and if a coaching train mile really costs so much less than a goods train mile.

6. Mr. Rendel states that his method of dividing the expenses by the amount of fuel consumed is not only the simplest, but also the most scientific. On railways where a record is kept of fuel consumed by passenger and goods engines respectively, it is no doubt a simple method; but on a line like this, where there are not separate engines for each description of traffic, it would be a very costly method, as more engines and a larger staff of drivers would be necessary to carry it out. And now with regard to the scientific accuracy of this method. Mr. Rendel appears to forget that gross ton miles and train miles are both of them some measure, though not an exact one, of work done, and fuel consumed is also not an exact measure; if you burn in an engine twice as much fuel at one time than at another time, it does not follow by any means that you do twice as much work even in the engine. Neither does it follow that an engine burning 25 per cent. more coal than another does 25 per cent. more damage to the permanent-way than the other. Is it a fairer method to divide traffic expenses upon, than train mileage or gross ton mileage? Then, as to the agreement between the three methods—Mr. Rendel's two and Mr. Jordan's. Sufficient data is not given to say if this is merely a coincidence; it may be that in the case given, large differences exist under every abstract without there being any great net difference; and, again, this agreement might not hold if the method was applied to the figures of another year. Mr. Rendel may have worked out the various methods for many lines and for many years, but he does not say so, and until the agreement is found to be general, it can only be taken as a coincidence, like the figures of this railway for the first-half of 1883, calculated by the new Government and Mr. Jordan's methods.

7. To go back to the point raised in paragraph 3—that on this line the new Government method must be as correct as Mr. Rendel's latest proposed method. The work expended on coaching and goods traffic, respectively, must, on a line like this, where nearly all the train mileage is mixed mileage, be necessarily proportionate to the weight moved, as the speed is the same for both kinds of traffic; or, in other words, it must be proportionate to the gross ton mileage.

8. With Mr. Rendel stating that in these days when rates are cut down, and with every prospect of greater reduction being made in the future, it is a matter of the very greatest importance to be able to divide the expenses between coaching and goods traffic, and Mr. Jordan writing that it is possible to prove one assertion by one method and to come to a contrary conclusion by the other, the conclusion I think that should be drawn is to distinctly realize that all the methods preferred give only approximations to the truth as far as can be known, and, therefore, that the results obtained should only be taken for what they are worth in fixing rates and fares, and not taken as infallible guides.

Statement No. 1.

	New Government.	New Rendel.	Jordan.	Old Government method.	Old Rendel.
<i>Half-year ending 30th June 1883.</i>					
Cost of hauling a coaching train one mile	2.56	Cannot be determined.	2.52	2.4	2.19
Cost of hauling goods " "	2.62		2.65	2.63	2.59
<i>Half-year ending 31st December 1883.</i>					
Cost of hauling a coaching train one mile	2.19	Cannot be determined.	2.30	2.13	2.44
Cost of hauling goods " "	2.71		2.60	2.54	2.44

						COACHING.				GOODS.	
						—	Jordan.	New Government.	—	Jordan.	New Government.
<i>Half-year ending June 1883.</i>											
Abstract A	...	...	...	...	...	...	1,41,223	1,41,223	...	1,38,831	1,33,912
" B	...	...	...	...	...	2,029	2,49,603	2,47,574	...	2,39,475	2,41,504
" C	...	...	...	...	...	...	24,095	37,914	13,819	51,090	75,185
" D	...	...	...	...	...	1,559	1,37,100	1,28,541	...	1,24,822	1,26,381
Abstracts E and G	...	...	...	...	...	718	60,271	59,553	...	57,825	58,543
<i>Half-year ending December 1883.</i>											
Abstract A	...	...	...	...	...	...	1,38,103	1,38,105	...	1,67,018	1,67,018
" B	...	...	...	...	...	27,575	2,66,399	2,33,823	...	2,61,246	2,88,822
" C	...	...	...	...	...	...	17,816	34,329	16,513	58,030	41,517
" D	...	...	...	...	...	10,634	1,03,311	92,617	...	1,01,314	1,12,008
Abstracts E and G	...	...	...	...	...	4,857	46,917	42,060	...	46,009	50,866

No. 4135-T., dated the 2nd August 1884.

From—II. DANGERFIELD, Esq., Offg. Manager, Rajputana-Malwa railway,
To—The Director General of Railways.

With reference to your endorsement No. 205-T., dated the 2nd June 1884, I have the honor to forward, for information, a statement shewing the division of expenditure of this railway (inclusive of the Rewari-Ferozepore railway open line) for the second-half of 1883 under each abstract according to the methods of apportionment recommended by Mr. Rendel (without the small deductions in calculating abstracts E and G), the Auditor, Great Indian Peninsula railway, and Locomotive Superintendent, Rajputana-Malwa railway, contrasted with the present method prescribed by the analysis of working. I also send you copies of the opinions to hand of some of the heads of departments on this railway, *viz.*, of the Locomotive Superintendent, the Traffic Superintendent, the Superintendent of Way and Works, and the Examiner of Accounts.

2. With a line having separate classes of engines set apart for coaching and goods traffic, respectively, I think the Locomotive Superintendent's proposal, with "speed between stations" as a factor, as probably the best; but the great defect in this method is when dealing with the *mixed train* proportions of coaching and goods, which travel at a different speed to the ordinary passenger and goods trains,—but has to be considered in the calculation as pure passenger and goods, respectively, and multiplied by the pure passenger and goods speed, as has been done in the statement attached.

3. As a uniform method, however, for all railways, 'I would recommend the Auditor, Great Indian Peninsula railway's, which appears to me to be the simplest and most practical in its results.

		DIVISION ACCORDING TO LOCOMOTIVE SUPERINTENDENT'S PROPOSAL.													
		Total expenditure.		Division according to Auditor, Great Indian Peninsula railway's method.		Division according to train mileage— Coaching, 87,446. Goods, 1,354,561.		Division according to gross ton mileage— Coaching, 112,121,572. Goods, 258,843,267. (Present method.)		With speed between stations. (Gross ton mileage— Coaching, 238,943,267. Goods, 1,121,1594.		With average through speed (including stoppages). (Gross ton mileage— Coaching, 258,843,267. Goods, 1,121,1594.		Division according to Mr. Rendel's method, i.e., according to fuel consumption on coaching and goods traffic.	
				Coaching	Goods.	Coaching.	Goods.	Coaching.	Goods.	Coaching.	Goods.	Coaching.	Goods.	Coaching.	Goods.
Abstract A	Rs.	8,02,214	2,42,463	5,59,751	3,20,450	4,72,724	2,42,463	5,59,751	3,18,498	4,83,716	3,55,104	4,47,110	2,61,356	5,43,858	
" B	"	14,83,880	6,09,468	8,74,412	6,09,470	8,74,410	4,48,493	10,35,387	5,89,134	8,94,746	6,56,847	8,27,033	4,83,437	10,00,443	
" C	"	2,87,015	1,01,543	1,85,472	1,17,834	1,69,131	86,749	2,00,266	1,13,951	1,73,064	1,27,049	1,59,966	93,507	1,93,508	
" D	"	5,26,876	2,16,403	3,10,468	2,16,408	3,10,468	1,59,345	3,67,631	2,09,182	3,17,694	2,33,225	2,93,651	1,71,653	3,53,223	
Abstracts E and G.	"	4,01,036	1,64,716	2,36,320	1,64,716	2,36,320	1,21,212	2,79,824	1,59,220	2,41,816	1,77,521	2,33,515	1,30,655	2,70,381	
Total	Rs.	35,01,021	13,34,598	21,66,423	11,37,968	20,63,053	10,58,162	24,42,859	13,39,985	21,11,036	49,746	19,51,275	11,40,608	23,60,413	

* Fuel consumption for C and G separately has been arrived at by multiplying W class engine consumption per train mile by total traffic, coaching train mileage for coaching, and by multiplying other class engines' (lumped together) consumption per train mile by total traffic goods train mileage for goods. It is impossible to get actuals.

No. 10570, dated the 27th June 1884.

From—The Locomotive Superintendent, Rajputana-Malwa railway,
To—The Manager, Rajputana-Malwa railway.

Your No. 3185 of 9th June 1884.

With regard to the apportioning of the working expenses between coaching and goods traffic, I have the honor to submit the following report:—

- (1). The present division of expenditure is in proportion of the gross weight of trains of coaching and goods without taking in consideration the speed, gradients, or the kind of traffic.
 - (2). Considering that there are no two lines where all these new factors,—“speed,” “gradients,” and “kind of traffic”—are alike, one cannot, for all lines, lay down a rule to which the working expenses should be divided.
 - (3). On lines which have an equal proportion of up and down traffic, or the same kind of traffic, and at the same time, about the same gradients and curves, these two factors may be neglected, and we have only to deal with the third factor—“speed.”
 - (4). The work performed by a locomotive is the gross ton miles multiplied by the speed in a certain time, and it will be more accurate to apportion the locomotive working expenses in proportion to the work done for coaching or goods traffic.
 - (5). The locomotive working expenses are made up of fuel, repairs of engines, running expenses (wages, &c.), water-supply, consumption of oil, tallow, and other stores.
 - (6). The cost for fuel is about 50 per cent. of the cost of the other locomotive expenses on the Rajputana-Malwa railway; while on other lines, with cheaper coal, the cost for fuel is much less. Therefore to take the consumption of fuel per train mile only as a measure, and neglect the other expenses, would give wrong results.
- To keep separate exact accounts of fuel, repairs of engines and other expenses for passenger and goods traffic is on this line, with so many kinds of engines, impossible on account of the branch lines, where I have to use any kind of engine for passenger and goods.
- (7). I therefore propose to divide the working expenses over coaching and goods traffic, as the gross ton miles of coaching multiplied by the average speed of coaching trains is to the gross ton miles of goods multiplied by the average speed of goods trains. This will give for the half-year ending December 1883 on Rajputana-Malwa railway—

Rs. 22,50,934 for goods,
„ 11,67,548 for coaching,
 instead of
„ 10,33,213 for coaching, and
„ 23,85,269 for goods,

as shown in No. IV of the analysis of working, 1883.

- (8). By introducing the factor “speed” for the calculation of apportioning between goods and coaching, and thereby divide the expenses in proportion to the work done by the engine, the locomotive expenses are more correctly divided as when the gross ton miles are only taken.

The same holds good for repairs of rolling stock, permanent-way and traffic expenses; the former two in about the same proportion as the locomotive expenses, while the proportion in traffic expenses may differ a little. Considering that any method to be adopted will give only approximate results, the method proposed above has the advantage of being simply and easily carried out.

- (9). For the half-year ending December 1883, the average cost of hauling trains on the present and now proposed methods would be as follows:—

	Passengers.	Goods.
	Rs.	Rs.
(1) Present	1.18	1.9
(2) Proposed	1.33	1.79

- (10). Railway No. 37, India Office, 3rd April 1884, herewith returned.

No. 6931, dated the 25th July 1884.

From—The Superintendent of Way and Works, Rajputana-Malwa railway,
To—The Manager, Rajputana-Malwa railway.

In reply to your No. 3756-T., dated 10th July 1884, which, owing to my absence on the line for some time past, I have only now been able to consider, I have the honor to report.

In consequence of my short experience of the system of statistical returns and working of open or semi-open lines, I regret I am unable to give my opinion on the relative merits of the present and proposed system of apportioning expenses to coaching and goods traffic that would carry any weight. On our partially completed line, the Rajputana-Malwa railway, where the disturbing elements of gradients, direction of traffic, varying climate, injurious effects of climate on works, varying class of engines, &c., &c., and where the fuel expenses are only a small portion of the whole cost, I consider that to base the relative cost of carriage of passengers and goods on the consumption of coal only (the theoretical correct measure of work done by the same machine under the same circumstances) would scarcely give a fair result.

When our line works more like clock-work, and all engine drivers are equally skilled, this measure of cost may be applied; but at present, as far as my knowledge goes, I would recommend the analysis system given by the Auditor, Great Indian Peninsula railway.

In the example given by Mr. Rendel on the East Indian railway, this system differs little from the system proposed by him.

No. St. 28410, dated the 27th June 1884.

From—The Examiner of Accounts, Rajputana-Malwa railway,
To—The Manager, Rajputana-Malwa railway.

Your No. 3183-T., dated 7th June 1884, forwarding correspondence relative to the division of working expenses between coaching and goods.

2. The question is one of too technical a nature to allow of my expressing any useful opinion, but it appears to me that on this railway, where a very large number of types of engines are employed, all of which show greatly varying rates of consumption of fuel, the division between coaching and goods of the working expenses on the basis of that consumption will hardly be even approximately accurate.

3. I regret to say that I have been unable to obtain the data necessary for making the comparison called for by the Director General of Railways, viz., the cost of fuel consumed in engines hauling passenger and goods trains respectively.

4. All our various types of engines are used at all times indifferently for goods and passenger trains, and no record has been kept of the mileage of each engine as regards the kind of train hauled. To obtain this information now, it would be necessary to make an abstract of the whole of the drivers' tickets for the year 1883,—some 45 or 50,000, and I fear that the drivers' tickets for the first-half of 1883 will probably have been destroyed.

5. If the statement is to be prepared, some small special establishment would be required in the locomotive office to get out the figures, and perhaps the 2nd-half of 1883 and 1st-half of 1884 might be taken.

No. M-3494, dated the 27th June 1884.

From—The Traffic Superintendent, Rajputana-Malwa railway,
To—The Manager, Rajputana-Malwa railway.

I have the honor to state, in reply to your No. 3184-T. of the 7th instant, that it appears to me that the present system of division of expenses between coaching and goods does undoubtedly result in the cost of hauling a ton of goods being estimated too high, and I think the system recommended by the Auditor, Great Indian Peninsula railway, might be given a trial with advantage.

2. In Mr. Rendel's simple system of division, it is possible that the cost of hauling a ton of goods is estimated too low.

No. 3829, dated the 23rd October 1884.

Endorsed by the Consulting Engineer, Calcutta.

Copy of the following letter, No. 1106-G, dated 17th October 1884, from the Agent, East Indian Railway Company, and of the enclosed communication working expenses between coaching and goods for analysis of carrying cost, forwarded to the Secretary to the Government of India in the Public Works Department, in continuation of this office endorsement No. 3349, dated 4th September 1884, for information.

No. 1106-G., dated the 17th October 1884.

From—B. LESLIE, Esq., Agent, E. I. Railway Company,
To—The Consulting Engineer to the Govt. of India for Guaranteed Railways,
Calcutta.

In reply to your docket No. 1998 of the 3rd June last, forwarding, for an expression, of opinion, a memorandum, dated 10th March 1884, by Mr. Rendel, a memorandum by Colonel E. C. S. Williams, R. E., dated 23rd February 1884, and a letter by Mr. Jordan of the Great Indian Peninsula railway, regarding the apportionment of working expenses between coaching and goods traffic for the purpose of ascertaining the cost of transport, I have the honor to offer the following remarks.

2. The methods of apportionment under discussion are as follows:—

- (a). In the preparation of the statistics compiled by the Government of India, the practice is to divide working expenses between goods and coaching traffic in the ratio of the gross ton mileage (freight and dead load) of each class of traffic, *viz.*, coaching and goods.
- (b). A second method, generally known as Mr. Rendel's, and followed in the preparation of the statistics formerly published in the Government Director's reports, is to apportion working expenses in the ratio of the passengers and goods train miles run.
- (c). Mr. Rendel now proposes a new method of apportionment, *viz.*, a division of expenses between passengers and goods on the basis of the power expended upon each, taking the consumption of fuel upon each as the measure of the power.
- (d). Mr. Jordan recommends a division of expenses partly in the ratio of gross ton mileage (freight and dead weight) of coaching and goods traffic and partly in the ratio of the train mileage.

I may remark here that the method I have sometimes adopted in certain cases is to divide expenses in the ratio of the train miles (coaching and goods) multiplied by the gross weight of trains in tons and their average speed in miles per hour.

3. The object of the present enquiry is, I understand, to ascertain as approximately as is practicable and feasible the cost of carrying goods and passengers: that is, there is to be no attempt to ascertain the absolute actual cost of carrying a unit of goods or coaching traffic in any half-year. An investigation to ascertain the actual cost of carrying a ton of goods or a passenger or a horse one mile for any given period would of course be impracticable, as the Chief Auditor very clearly indicates in his letter No. 6481 of 27th August last, enclosed herewith. This matter has already been gone into very fully with the result stated by the Chief Auditor. But some approximation to the actual cost is attainable, and the information so arrived at may be highly useful for certain purposes and within certain limits. The object of the present enquiry is therefore, as I understand, to ascertain the nearest approximation which is practically attainable.

4. I do not think that any one of the methods referred to in para. 2 gives the nearest approximation that can be arrived at, because they disregard the fact that certain expenditure, more or less easily ascertainable, is incurred not jointly on the two classes of traffic, but solely on account either of coaching traffic or of goods traffic. It appears to me that for the purpose in view, expenditure of this nature should in the first place be eliminated, and should be charged entirely to the class of traffic, coaching or goods for which it is incurred and that only the balance (being treated as for goods and coaching traffic jointly) should be divided on an arbitrary basis, the basis selected being such as will make the apportionment equal, as nearly as possible, to the actual share of such joint expenditure incurred on account of goods and coaching traffic respectively.

5. As regards the items of expenditure to be eliminated, the selection of these items, and the settlement of the best method of shewing them separately in such of the accounts in which the separation may be necessary, should, I would suggest, be made the subject of enquiry by a Committee in which the different railways concerned should be represented. Elimination of expenditure of this nature should be made to the greatest extent feasible without introducing excessive and inconvenient detail in returns and accounts. As regards the division of the balance of expenditure, the Committee to be appointed might discuss and determine the best means of apportionment. A division in the ratio of ton miles would not admit of general application, because it entirely disregards speed; and a division in the ratio of train miles would no doubt be rejected, because it assumes that the extra weight of goods trains is counterbalanced by greater speed of passenger trains, which is by no means the case. As regards the proposal to take the consumption of fuel as the basis of division, it seems to me preferable to make the division in the ratio of the gross weight of trains expressed in tons multiplied by the number of miles run and by their average speed in miles per hour.

The matter is of sufficient importance to be dealt with in this manner, and will, I think, be so dealt with more satisfactorily than if the Government of India decide to adopt any one of the systems now under notice. A copy of the Chief Auditor's letter No. 7092 of 16th September 1884 is also enclosed.

No. 7092, dated the 16th September 1884.

Memo. from—R. C. S. MACKENZIE, Esq., Chief Auditor, E. I. Ry. Co.,
To—The Agent, East Indian Railway Co.

[Analysis of working items 18, 19, 77, and 113.]

With reference to his docket No. 9758, dated the 28th July last, informs him that the working expenses of the two half-years of 1883, less steam-boat expenditure and the earnings under Electric Telegraph and Sundries, have been divided between goods and coaching according to the method proposed by Mr. Rendel, in his memorandum, dated the 10th March last, and a statement is annexed shewing, in juxtaposition, for the purposes of comparison, the figures resulting from Mr. Rendel's process and those from the Government system quot-

ed in the analysis of working of the East Indian Railway proper for the half-years referred to.

Average cost of hauling a train one mile.

		Coaching.	Goods.
Half-year ended June 1883—			
Present Government system	...	1'08	1'85
Mr. Rendel's new system	...	1'46*	1'63*
Half-year ended December 1883—			
Present Government system	...	1'23	2'02
Mr. Rendel's new system	...	1'61	1'75

No. 6481, dated the 27th August 1884.

From—R. C. S. MACKENZIE, Esq., Chief Auditor, E. I. Ry. Co.,
To—The Acting Agent, East Indian Railway Company.

COST OF CARRYING UNITS.

Your office docket No. 9758 of 20th July, forwarding copy of Consulting Engineer's No. 1998 of 3rd June, and annexures.

I beg to refer you to this office Nos. 5234 and 5476 of 22nd October and 3rd November 1868 and 2945 of 18th May 1871, with the views expressed, in which I fully concur.

I also beg to invite attention to para. 15 of the report of the Committee appointed under the orders of the Government of India in 1880 for the revision of the statistics of Indian railways.

I am not aware that since the letters above referred to were written any approach has been made to scientific investigation of the laws that govern the expenditure of the several departments, and you will remember that, in adopting a single ratio for the division of working expenses between coaching and goods traffic, the Committee of 1880, while (by a majority) preferring, on the whole, that of gross ton mileage, recorded—"a decided opinion that any conclusions that may be drawn as to the cost of carrying units must be considered as approximate only, and, without a careful review of all influences bearing on the result, cannot be employed as a basis for any accurate comparison or deduction."

My recollection of this "decided opinion" recorded is, that it was a compromise arrived at after considerable discussion; the view of a minority of the members being in accordance with the views expressed by Mr. Roberts in the letters above referred to, and supported by myself; while the majority held that one of the chief purposes of the appointment of the Committee was to recommend some simple rule for the division of the working expenses between coaching and goods traffic, and that, with the reservation indicated, gross ton mileage was the best simple basis on which to measure the effect, even although it might not even approximately gauge the effort.

As a compromise, too, the Committee recommended the exhibition, in the analysis of working, of the cost and profit of the units obtained by the method of dividing expenditure between coaching and goods on the assumption that the cost per coaching and goods train mile is the same—or what was known as Mr. Rendel's method.

The Government of India, you will remember, disapproved of this proposal, but under later instructions received from the Secretary of State, an analysis made according to this method is now appended to the half-yearly Revenue Accounts.

In some respects—certainly as regards the apportionment of the cost of the locomotive department, probably in a more limited degree as to the carriage and wagon department, and perhaps also as to part of the cost of maintenance of way—Mr. Rendel's new method,—the consumption of fuel in hauling coaching and goods trains respectively,—would be a better gauge of actual cost than his old method, or ton mileage is; but I am not prepared to venture an opinion, as regards other heads of expenditure, whether it would be preferable; all

* Mr. Rendel quotes 1'43 and 1'68 for this half-year according to his method, but it is not understood how the figures have been arrived at.

these methods being obviously faulty, and it being probably impossible to say with certainty which would give the nearest approximation to accuracy, or within practical limits what margin of error must be allowed for.

But supposing that by some method or other the average cost of carrying a unit one mile could be arrived at, the difficulty of making practical use of the figure still remains. The unit in goods traffic is the average of a great variety of articles differing widely in the actual cost of carriage, and the consequences of applying the same average to, say, coal, grain and piecegoods would be—to say the least of it—misleading, and might be disastrous; this is, no doubt, what the Statistics Committee meant in making the reservation I have quoted above.

But besides all this, there is the very important fact to consider that while the expenses brought to book in the accounts of any half-year shew the cost of wear that has resulted in the expenditure of money or stores, that cost may, and does, include wear that has really occurred in one or more previous half-years, and does not include so much of the wear in the half-year as has not involved replacement or repair during that period, but will do so in some future half-year. Under the present system, too, we go so far as to exclude the liability for replacing condemned locomotives, &c., which is not taken to account until the engines are replaced.

It may perhaps be urged that the average of several half-years instead of one might be relied upon; but here, again, there is a difficulty. Improvements in locomotives and carriages and wagons and appliances, in the use of steel for iron rails, in methods of working, &c., &c., may cause a real reduction of cost which would be at least partially concealed in such an average.

On the whole, I think the most prudent course would be to put the matter in the hands of an experienced actuary for report as to what figures and other information would be necessary to admit of arriving at the cost of carrying goods and coaching units, and to how many places of decimals the result might be relied upon for practical purposes, and also whether the average could be applied to any particular staple; and, if so, what would be the maximum and minimum margin necessary to be allowed for possible error.

No. 5234, dated the 22nd October 1868.

From—The Chief Auditor, E. I. Railway Co.,
To—The Chairman, Board of Agency.

In reference to your office docket No. 3379 of 8th ultimo, in which I am requested to furnish to Government certain statistical returns the Agency appear to have agreed to prepare at the expense of the Company, I request the favor of your sending me copies of the form in which the returns are required, with illustrative entries, shewing specifically every detail required from the statistical department of this office.

I ask for this information to enable me to ascertain how far it is practicable to meet the wishes of the Agency, and because I have but little faith in the possibility of ascertaining correctly the cost of carrying units.

I beg to remind you, with reference to this office No. 2335 of 11th May last, that the orders of the Board of Directors have been solicited with regard to the principles on which the cost of carrying units is to be investigated, and I would strongly urge that the company should not be committed to the acceptance of any results as to the units of cost that may be obtained from the information the Agency propose shall be furnished to Government.

I would also point out that in some respects Mr. Stephenson's "Note on the cost of carrying units," dated 22nd May 1868, is evidently based on misapprehension. For instance, it is stated that the locomotive expenses of passengers and goods are completely separate in the accounts. This, of course, is at no time possible with regard to the cost of superintendence and other general charges of the locomotive department; but it cannot also be done with respect to the working charges of mixed trains, and such trains, it is understood, are to be made use of to a much greater extent than hitherto.

With respect to rolling stock, too, it is obviously impracticable for the same reasons. Again, it is argued from the alleged fact of a carriage or wagon requiring the same amount of work and supervision in passing a station and for establishment, whether it be full, half full, or empty, that the traffic charges common to passengers and goods should be divided in *the ratio of ton mileage*—a conclusion quite unsupported by the premises.

It is also no doubt quite true that weight and mileage must not be ignored; but is it not equally necessary to take speed into account in dealing with the wear and tear of locomotive and rolling-stock?

I trust I have said enough to show that the principles on which the investigation should be conducted are by no means satisfactorily ascertained, and I trust the orders of the Board of Directors on the subject will be awaited.

On hearing from you in reply to the first part of this letter, I will prepare, for sanction of the Official Committee, an estimate of the staff required to complete the returns, reserving the question of whether the cost is to be borne by the Company or the Government for future discussion.

No. 5476, dated the 3rd November 1868.

From—The Chief Auditor, E. I. Railway Co.,

To—The Chairman, Board of Agency.

[*Cost of carrying units.*]

In continuation of my No. 5234 of 22nd ultimo, I beg to offer the following observations on the investigation of the cost of carrying units.

It is evident that the expenses incurred in working the line must first be divided so as to shew against each head and sub-head of *earnings* the cost at which the respective amounts have been earned, such cost being made up of a part or proportion of so much of the charges against the several sub-heads of expenditure as affect the several items of earnings respectively.

The number of maunds of merchandize and minerals or persons of each class carried over one mile being then ascertained, the expenses appertaining to each may be divided by this number (or weight), and the result taken to represent the cost of carrying one passenger or one maund of goods one mile.

This however simple it may look, is infinitely more difficult than might be supposed. The causes governing the expenditure under *each* head and sub-head must be investigated, and until this has been satisfactorily done, it would be mere groping in the dark to attempt to apportion them to the heads of expenditure.

Take, for instance, the head of expenditure "Maintenance of way and works." The expenses are for—

Replacement and wear and tear of rails.	Repairs of goods warehouses.
Ditto ditto chairs, &c.	Ditto of dwelling-houses.
Ditto ditto of sleepers.	Ditto of embankments.
Repairs of passenger stations.	Ditto of bridges.
(and possibly other heads.)	

All the expenditure must be divided under some one or more of these heads, *viz.*, the salaries of engineers, wages of inspectors, clerks of works, plate-layers, sircars, gate-keepers and laborers, the cost of stores and materials, the passage money, the locomotive power employed, the travelling expenses, the office expenses, and the expenses called miscellaneous.

It has then to be determined, with regard to each of these heads, how much, if any, of the expenditure is for each class of passengers, for parcels, for luggage, or horses, for carriages, for dogs, for mails, for each class of merchandize, for cattle,

for sheep, for minerals, for electric telegraph, for rent, for hire of rolling stock, for demurrage, for Soane bridge tolls, for Tonse bridge tolls, for Allahabad Bridge tolls, for Delhi bridge tolls, and for interest on monthly balances in the hands of Government, and any other earning.

In the like manner, it has to be determined, with regard to every other item of expenditure, how much of it is referable to each head or sub-head of earnings. When all this has been satisfactorily done, *if it can be done*,—which I believe it cannot,—it has yet to be applied to the mileage of units; and here a fresh difficulty arises. In passengers, the mileage may be taken by converting money into units by the rate, and it may be ascertained with more or less approximation to correctness in parcels and horses, &c.; but in dealing with mails, where the charge is for haulage merely, what is the unit? or, again, with regard to cotton or other goods carried by measurement, not by weight, what is the unit? and even if the cost of carrying measurement goods could be eliminated from that of carrying other goods, of what possible use would the knowledge be, supposing it could be attained; that it had cost a certain sum to carry a maund of goods one mile, knowing as we do that this unit of weight is compounded of goods of all descriptions, in which weight and bulk and real cost of carriage bear various proportions to one another, and that a preponderance in any succeeding half-year of any weighty or bulky goods would at once and alone cause an alteration in the unit or cost. It must moreover be remembered that the expenditure of a half-year is not commensurate with the wear of the same period, the wear in one half-year necessitating expenditure in a subsequent period.

The cost of each class of vehicle must also be taken into consideration in determining the cost of carrying each class of passenger and each description of goods.

I have made these observations to shew what information is absolutely necessary, if the investigation into the cost of carrying units is to be anything more than empirical assumption.

I would also impress upon you the necessity of considering whether it is proper to assent to the preparation of such statistics for the purpose "of obtaining data as to the fares that should properly be fixed for passengers," as avowed by the Government of India in their No. 81R. of 21st January 1868; this Company being a commercial undertaking, and not a political machine, so long as the shareholders have an interest in all earnings in excess of 5 per cent., it being the duty of the Board of Directors and the Agency, as representing the shareholders, to carry passengers and goods at such rates as shall be most remunerative to the Company.

No. 2945, dated the 18th May 1871.

From—The Chief Auditor, E. I. Railway Co.,

To—The Chairman, Board of Agency.

[*Statistics required by Government for analysis in view to ascertaining cost of carrying units. Government of Bengal, No. 913-G. of 5th instant, under your office docket No. 1987 of 8th idem.*]

Until receipt of the above, I had hoped that the Government had finally given up the enquiry into the cost of carrying units last proposed in 1868. I much regret to find that it is now resuscitated, and that the means by which they expect to arrive at the object in view are as untrustworthy, and the data as unsound, as ever.

In order to shew the difficulties to be overcome in pursuing an enquiry into the cost of carrying units, I addressed you in my No. 5476 of 3rd November 1868, and for ready reference, I annex copy of my letter, to which I would ask the attention of the Agency.

I have now but little to add. The *assumptions* to be made in the Government scheme are so numerous as to reduce the probability of accuracy in the result to less than one half, if the error in each is not greater than 1 per cent. It

may perhaps be urged that the errors would not all be plus or minus, but I see nothing whatever to support such a view, and I consider that in estimating the value of the scheme, it is necessary to accept the maximum of error. Of all the Government assumptions, those as to the average weight of units only can be put to the test; and here I venture to believe that, if tested, the error will be found to exceed 1 per cent. All the ratios in which it is proposed to apportion the expenditure are empirical, and sweeping general rules take the place of what should depend upon scientific investigation. I am not aware that science has reduced to general principles the laws that govern the apportionment of each item of expenditure between coaching and goods in the first place, and afterwards to the several classes; nor do I believe that in the present state of our knowledge this can be done. At the same time I would observe that the Government rules are not in accordance with the expressed opinions of such a scientific authority as Mr. Charles Hutton Gregory, Vice-President of the Institute of Civil Engineers, to whose evidence before the Royal Commission on railways in May 1866 I would invite attention.

I know of no investigation into the cost of carrying units having ever been carried out in England, and the numerous and apparently insuperable difficulties quite account for this, for after all, even if a satisfactory result could be obtained for a single half-year, it would not point with reliable accuracy to the result for any other half-year in which each and every item of earning and expense did not remain the same.

I would remind you that the avowed object of Government in prosecuting such an investigation is, or was, in order to regulate fares and rates; indeed, it is difficult to conceive for what other purpose it could be intended, seeing that it is useless for comparison of the working of different lines, the ages and circumstances of which are not the same. If, as I think I have sufficiently proved, the enquiry is useless, it must mislead and cannot be harmless, and should not be suffered to proceed without protest, and a distinct intimation that this Company will not accept any conclusions at which Government may arrive, and that the Company will not be committed to any expenditure in the unprofitable search which the Government may consider interesting, even if useless. Now, it appears to me, is the proper time for such a protest and such an intimation, and I trust the Agency will not let the opportunity pass.

Extract from the Proceedings of the Government of Madras, in the Public Works Department,—No. 1082-R., dated 7th November 1884.

Read the following papers:—

No. 728, dated the 21st October 1884.

From—The Agent and Manager, Madras Railway Co.,
To—The Consulting Engineer for Railways, Madras.

I have the honor to reply to your No. 693, dated the 18th instant, and to forward you copies of letters from the Acting Chief Auditor* and the Traffic Manager,† conveying the expression of their views on the proposed change of the method of apportioning the working expenses between coaching and goods traffic.

2. I agree generally with Mr. Cramp and Mr. Church in thinking that it will be desirable to adhere to the present mode of making this apportionment, especially as the proposed change would have the effect of unduly burdening coaching traffic to the advantage of goods and on this railway, where coaching traffic is carried at a cheaper rate than on any other line in India, I should be sorry to see any alterations made in the present system, especially as it appears agreed by all that, whatever division is fixed on, it must be at best an arbitrary one.

3. I regret much the delay that has occurred in replying to this reference.

No. C. 1 ^{697 A and M.} ₇₉₄₅, dated the 14th October 1884.

From—H. E. CHURCH, ESQ., Traffic Manager, Madras Railway Co.,
To—The Agent and Manager, Madras Railway Co.

[Working expenses of railways.]

[Consulting Engineer's letter No. 391, dated 14th June, forwarding copy of a despatch from Her Majesty's Secretary of State for India, and of its enclosures, regarding a proposed change in the method for apportioning the working expenses of railways between coaching and goods traffic for the purpose of calculating the cost of transport].

I understand that the Acting Chief Auditor has furnished the results for this line worked out according to the present and proposed methods, and my own opinion of the question is, that as it is not possible to arrive at an absolutely correct system of dividing the working expenses between coaching and goods, the present analysis, if adopted by all railways, would appear to be sufficiently approximate for the present purposes of Indian railways.

No. 950, dated the 23rd July 1884.

From—J. CRAMP, ESQ., Acting Chief Auditor, Madras Railway Co.,
To—The Offg. Agent and Manager, Madras Railway Co.

[Consulting Engineer's letter No. 391, dated 14th ultimo.]

The enclosures of the above letter have reference to a proposed change in the present method of dividing working expenses between coaching and goods traffic.

2. The present system is based on the gross ton mileage, the proposed system on the train mileage consumption of fuel.

3. The objections brought against the present method are—

1st.—that the effect is to favor passenger traffic at the expense of goods traffic;

2nd.—that weight only is considered and no allowance made for speed.

The division of charges according to both methods for the two halves of 1883 gives the following results for this railway:—

COST OF WORKING PER TRAIN MILE.

Half-year 30th June.

				Passenger. Rs.	Goods. Rs.
Present method	...	...	...	1'61	2'63
Proposed "	...	...	...	1'96	2'34

Half-year 31st December.

Present method	...	...	...	1'49	2'51
Proposed "	...	...	...	1'85	2'21

5. The work of a train mile for the two periods of 1883 will be found from the following data:—

Half-year 30th June.

				Passenger. Tons.	Goods. Tons.
Average weight of train hauled	...	...	...	114'00	218'35
				Miles.	Miles.
Average through speed per hour	...	...	...	18'60	11'93

Half-year 31st December.

		Tons.	Tons.
Average weight of train hauled ...	...	117.57	239.52
		Miles.	Miles.
Average through speed per hour ...	...	18.85	11.93

6. The work of a train mile will therefore be as follows:—

Half-year 30th June.

Passenger—114 tons moved 1 mile in 3.22 minutes.

Goods—218.35 tons moved 1 mile in 5.02 minutes.

Half-year 31st December.

Passenger—117.57 tons moved 1 mile in 3.18 minutes.

Goods—239.52 tons moved 1 mile in 5.02 minutes.

7. Whether the present system of dividing charges takes into the calculation the effect of speed as well as weight will, perhaps, be most clearly shown by a comparison of two trains working under exactly the same conditions as regards time and weight, and differing only in speed, *i.e.*, the weight moved by both trains must be equal and the working time equal, but the speed unequal.

8. If the speed of one train be double the speed of the other, the ton mileage of the former will, of course, be double the ton mileage of the latter, and consequently under the present system of dividing cost, although the trains differ from each other in no respect but in speed, two-thirds of the charges will fall to the share of the fast train and only one-third to the slow train. That a double share of the charges falls upon the fast train is surely taking into account the influence of speed on cost. It is clear that higher speed means higher cost, but it also means a saving in time, and that time saved is money saved appears to be overlooked when it is stated that "in this method nothing is considered except gross dead weight."

9. If the above view of the case be correct, it follows that under the present system the cost of a passenger train increases in exact proportion to the speed.

10. The foregoing has reference to passenger and goods trains run separately. There are also mixed trains to be considered.

11. The mileage of mixed trains is divided between coaching and goods on the basis of the passenger and goods vehicle mileage. The average weight of a passenger and goods vehicle, freight and dead weight, for the first-half of 1883, was 8 tons and 9.10 tons respectively. Consequently in the division of charges between a coaching and a goods vehicle on a mixed train a somewhat larger share will fall upon the latter, because the weight is greater. In a case of this kind it seems only fair that weight should be taken into the calculation. If the two vehicles run at equal weight, charges are equally divided between them.

It might be objected that delays will occur in handling goods for which the passenger vehicle is in no way responsible, and that the costs due to such delays should properly fall upon the goods vehicle only. From this point of view the present system actually favors the goods traffic in the case of mixed trains.

13. The present system, I think, is the best and the most reasonable that can be found, and in my opinion the allegations brought against it cannot in any way be sustained. The Committee who recommended its adoption report on it as follows:—

"It is believed, however, that the gross ton mileage being the fairest measure of work done gives, on the whole, a basis for this division of the expenses preferable to any other which has been proposed." and with this I fully agree.

No. 782, dated the 16th October 1884.

From—The Acting Agent, South Indian railway,

To—The Consulting Engineer for Railways, Madras.

I regret that your reference (by letter No. 371) on the subject of a proposed change in the matter of apportioning the working expenses between coaching

and goods has remained so long unanswered. This has been due to the Chief Auditor being engaged in preparing his half-yearly Revenue Accounts while short-handed owing to the absence through ill-health of his Assistant, and he was not therefore able to devote much of his time until lately to the question under reference. He has now sent me his report as follows:—

"Your No. 5982-719, dated 16th June *re* working expenses of railways with reference to the question raised in G. O. No. 598-R.

"The objection raised in Mr. Rendel's memorandum of the 10th March last, appears to me to lose much of its force when applied to a railway upon which a large proportion of the traffic is conveyed by mixed trains; and therefore to the conditions under which the South Indian railway is worked. Mixed train mileage requires to be apportioned between passenger and goods traffic, and as, with the exception of weight, the conditions under which the two classes of traffic are carried are the same, a consideration of the dead weight hauled is the only equitable basis of division if results of a mechanical nature are required. I cannot, therefore, agree with Mr. Rendel that the division of expenditure in the proportion of gross weight of trains is the 'farthest from the truth,' when the conditions under which the traffic is conveyed are such as apply to this railway. In Mr. Rendel's memorandum it is apparently assumed throughout that goods traffic and passenger traffic are conveyed by separate trains, and in explaining the *modus operandi* of his proposed system, no reference is made to traffic carried under other conditions, nor is any explanation afforded as to how the fuel consumed in working mixed trains should be divided.

"I regret I am not able from available data to furnish you with the figures asked for for the two half-years of 1883 except approximately, and those given below as the results under the 'proposed method' must therefore be accepted with some caution. They have been based upon a consideration of the fuel consumption of the only separate goods and passenger's services running over this line,—namely, those between Egmore and Trichinopoly; and it is possible that had the fuel consumption been so recorded as to render easily accessible similar information throughout the whole system, its completeness might have comprised conditions which are absent from the partial data upon which my calculations have been based, and which might have materially affected the results which I have arrived at:—

	PRESENT METHOD.		PROPOSED METHOD.	
	Coaching.	Goods.	Coaching.	Goods.
Half-year ending 30th June 1883.				
A.—Cost per train mile, the mixed train mileage being divided in proposed method upon vehicle mileage as shown in the Revenue Account.	1.564	1.582	1.536	1.556
B.—Cost per train mile, the mixed train mileage being in the proposed method divided on the gross tonnage hauled respectively on coaching and goods account.			1.618	1.495
Half-year ending 31st December 1883.				
As per method A ...	1.527		1.499	1.663
Ditto. B ...		1.638	1.625	1.556

"The cost of conveying a unit of traffic is a problem too intricate to be solved with mathematical precision, but in my opinion more reliable results are likely to be obtained by a method similar to that proposed in the memorandum drawn up by the Chief Auditor of the Great Indian Peninsula railway, or one based on the lines of that which is termed in Colonel Williams' note the 'Government system of

analysis, than by any which seeks to apply a common factor to the separate circumstances of the several departments by which the traffic is worked."

The Traffic Manager states his opinion that in consequence of our mixed train system, "the figures by each plan will come out pretty nearly the same."

No. 275, dated the 6th November 1884.

Endorsed by the Consulting Engineer for Railways, Madras.

Submitted to Government, with reference to Proceedings, dated 7th June 1884, No. 598 R.

2. The above papers contain the views of the officers of the Madras and South Indian railways on the proposal made by Mr. Rendel for an alteration in the present system of dividing working expenses between coaching and goods traffic in the half-yearly analysis of working.

3. On the Madras railway the system now in force of dividing expenses on the gross ton mileage of coaching and goods is approved.

I do not, however, altogether follow the arguments advanced by the Chief Auditor in support of the present system. It appears to me that the conditions assumed are, if not impossible, at least opposed to those met with in ordinary working. The load of a train is usually proportioned to the speed at which it is to run, and this being so, it cannot be run at double that speed without reducing the load and running another train to convey the vehicles thus shut out.

4. The officers of the South Indian railway are of opinion that, as a large proportion of the traffic on that line is conveyed by mixed trains, the results by any of the proposed methods would differ but little. The Chief Auditor appears, however, to favor what is known as the old Government system, or that adopted by the Chief Auditor of the Great Indian Peninsula railway, which differs but little from it.

5. I concur in the opinion that the old Government system gave results more nearly approximating the truth than that now in force. In the example given by Mr. Rendel the figures obtained by his new method differ only slightly from those arrived at by the Chief Auditor of the Great Indian Peninsula railway; and if this coincidence may be held to follow generally, I see no serious objection to the adoption of Mr. Rendel's proposal, although the greater simplicity claimed for it is not, I think, of much importance. On the whole, I consider the old Government system, or the modification thereof, adopted on the Great Indian Peninsula railway, the best.

No. 1081-R., dated the 7th November 1884.

Order thereon by the Government of Madras.

Ordered to be forwarded to the Government of India, with reference to their letter No. 449 R. T., dated 22nd May 1884.

No. 1082 R.

Endorsed by the Government of Madras.

Forwarded.

No. 2135, dated the 20th November 1884.

From—MAJOR-GENERAL H. F. HANCOCK, R. E., Joint Secy. to the Govt. of Bombay, P. W. Dept., Railway Branch,

To—The Secretary to the Government of India, P. W. Dept.

I am directed to acknowledge the receipt of your letter No. 449 R. T., dated 22nd May last, and accompaniments, and to submit 4 copies of Minutes of a Special General Meeting held at Poona on the 1st October to consider the change proposed in the method recommended by the Statistical Committee of 1880 for apportioning the working expenses of railways between coaching and goods traffic for the purpose of calculating the cost of transports.

2. The subject has been fully considered by the officers of the more important railways under the control of the Government of Bombay, with the result that they are unanimously in favour of maintaining the present system of division on the basis of gross ton mileage. Appended to the Minutes of the meeting will be found tables exhibiting the results of applying this and other systems, including two advocated by Mr. Rendel, to the figures in the Revenue Accounts of the Great Indian Peninsula and Bombay, Baroda and Central India railways for the two halves of 1883.

3. I am to invite a reference to my letter No. 1073, of 22nd September 1875, and the memorandum by the Consulting Engineer for Railways, No. 3212, dated the 21st idem, therewith submitted, in which the arguments for and against the adoption of gross ton mileage as a basis for division, then for the first time recommended by Major (now Lieutenant-Colonel) Dowden, R. E., were fully stated, and its superiority to Mr. Rendel's method was contended for. Further discussion led to its adoption by the Statistical Committee of 1880, and the Governor in Council considers that the arguments recorded at the recent meeting at Poona conclusively establish its superiority to any other that has been proposed.

Minutes of Special General Meeting held at Poona on Wednesday, the 1st day of October 1884, at 12 o'clock.

PRESENT.

Government Officers	...	...	MAJOR-GENERAL H. F. HANCOCK, R. E., Consulting Engineer for Railways.
			CAPTAIN W. I. LEBRETON, Government Examiner of Railway Accounts.
G. I. P. Railway Company's Officers	...		G. A. BARNETT, Esq., C.I.E. Agent.
			E. V. JORDAN, Esq., Auditor.
B., B. and C. I. Railway Company's Officers.			T. W. WOOD, Esq., Agent.
			J. O'CONNELL, Esq., Auditor.
			COLONEL J. G. LINDSAY, R. E., Chief Engineer, for Agent.
S. M. Railway Company's Officers.			W. F. O'DONOGHUE, Esq., Joint Auditor and Examiner.

The Meeting was assembled with reference to Government Resolution No. 1052 of the 16th June 1884, to report upon the proposals put forward for change in the method of apportioning working expenses of railways between coaching and goods traffic.

The following were among the papers read on the subject:—

Letter from the Secretary to the Government of India, No. 449 R. T., dated 22nd May 1884.

Despatch No. 37 Railway, dated 3rd April 1884, and its enclosures, from Her Majesty's Principal Secretary of State for India.

Proceedings of Statistical Committee assembled at Simla in July 1880.

Proceedings of Railway Conference at Calcutta in February 1884.

Government of India letter No. 1574 R., dated 23rd June 1875, and accompaniment.

Bombay Government reply No. 1073 of 23rd September 1875, and accompaniment.

Figures worked out by the Government Examiner, showing the division of the G. I. P. Railway Company's working expenses for the two halves of 1883 according to gross ton mileage and according to the estimated fuel consumption.

Figures worked out by the Chief Auditor and Accountant, B., B. and C. I. railway, showing the division of that Company's working expenses for the two halves of 1883 according to (a) gross ton mileage, (b) estimated fuel consumption, (c) the proposal put forward by the Auditor, G. I. P. railway, and (d) a combined method of actual figures and division as explained by Mr. O'Connell in the Appendix to his letter No. T.-A. 3631, dated 21st July 1884.

Copies of the two last named papers are attached to these Minutes.

The conclusions arrived at by the Meeting (*nem. con.*) were as follows:—

- (1.) They desire emphatically to endorse the opinion of the Simla Statistical Committee of 1880 (para. 15) "that any conclusions that may be drawn as to the cost of carrying units must be considered as approximate only, and, without a careful review of all influences bearing on the result, cannot be employed as a basis for any accurate comparison or deduction," no matter what system of division of working expenses between passengers and goods may be adopted. They would point out that even if the carrying cost of an unit could be accurately apportioned by any method, which, however, they believe to be impossible, still the result would only be the average cost of carrying an unit during the half-year, and the figure could not be relied upon as a guide in fixing rates for carriage, either of passengers or goods, which rates are influenced by many other considerations as pointed out by the Calcutta Conference of February last in paragraph 17 of their proceedings, which runs as follows:—

- * (a) Carrying cost.
(b) Insurance or liability for loss or damage.
(c) Distance.
(d) Competition.
(e) Value of commodity.
(f) Encouragement of trade.
(g) Season as affecting direction or flow of empty wagons.
(h) Inexpediency of frequent and sudden alterations.

"The Conference acknowledge that the principles enunciated by the President and found under the sub-heads (a) to (h)* are those which in general are now and should continue to be taken into consideration in fixing rates with the exception of sub-head (g), which would refer to only special cases."

- (2.) They consider that statistics of carrying cost are mainly useful for comparison between different railways and the same railway at different times, as a general guide towards determining whether any changes that may have been introduced have been beneficial or the reverse, and in what directions economy may be practicable or disirable.
- (3.) They are of opinion that uniformity in the method of division by all railways is essential, and that simplicity of method is highly desirable. Any attempt at extreme accuracy in the method of division would involve so much elaboration and consequent delay in the preparation of the return, that it would become useless for practical purposes. This was clearly shown in the case of the old form of Government analysis, and was in fact a principal reason for its revision in 1880.
- (4.) They do not recommend that any change be made in the method adopted on the recommendation of the Statistical Committee in apportioning the working expenses of railways between coaching and goods traffic, *viz.*, on the basis of gross ton mileage, in favor of Mr. Rendel's or any other system. The results obtained by this method appear to them to be sufficiently near for all practical purposes. They are of course aware that objections may be taken to this or any other system that does not take account of any actual expenses so far as they can be ascertained, but, excepting in the case of repairs and renewals of coaching and goods vehicles and some minor items, actuals would not be obtainable from all railways alike. Moreover, it has to be borne in mind that the cost of repairs and renewals of stock carried out in any half-year may not, and to a great extent cannot, properly appertain to the half-year in which the outlay is charged,—the fact being that on all Indian lines heavy repairs due to work done in the busy season are unavoidably carried out and paid for in the succeeding half-year.
- (5.) They would point out, in conclusion, that the results shown in the accompanying comparative statements do not bear out Mr. Rendel's condemnation of the present system of apportionment of expenses according to gross ton mileage in the cases of the two principal Bombay railways. The figures worked out on this basis for the G.

I. P. and B., B. and C. I. railways for the two halves of 1883 do not differ widely from those worked out according to Mr. Rendel's latest method, and in the case of the B., B. and C. I. railway they approximate closely to those worked out on Mr. O'Connell's alternative.

H. F. HANCOCK, Major-Genl., R. E.,
Consulting Engineer.

G. A. BARNETT,
Agent, G. I. P. railway.

T. W. WOOD,
Agent, B., B. & C. I. railway.

J. G. LINDSAY, Colonel, R. E.,
for Agent, S. M. railway.

W. I. LEBRETON, Capt.,
Examiner, Ry. Accounts.

E. V. JORDAN,
Auditor, G. I. P. railway.

J. O'CONNELL,
Chief Auditor and Accountant,
B., B. & C. I. railway.

W. F. O'DONOGHUE,
Auditor and Examiner, S. M.
railway.

No. T.-A. 4631, dated the 21st July 1884.

From—J. O'CONNELL, Esq., Chief Auditor and Accountant, B., B. and C. railway,
To—The Agent, B., B. and C. I. Railway Co.

With reference to Government Resolution No. 1052 of 16th ultimo, and its accompaniments, regarding the division of expenditure between coaching and goods for the purpose of arriving at the approximate cost of working the respective kinds of traffic, I have had our expenditure for the two halves of 1883 worked out on the following methods:—

- (a) As proposed by Mr. Jordan;
(b) On the estimated quantity of fuel consumed in working goods and coaching trains, respectively, as proposed by Mr. Rendel; and
(c) On the basis described in the accompanying Appendix.

2. Mr. Jordan's basis of division is not exactly the same as that which was condemned by the Statistical Committee in 1880. On that system abstract D (traffic expenses) was divided by vehicle mileage, which, although not a fair basis, was not so unfair to coaching as a division on train mileage as adopted by Mr. Jordan, on the ground that "the extra attention required by passengers and the frequent stoppages of passenger trains is probably equal to the extra cost of hamallage, &c., under our present system of working."

3. I do not concur in that view; on the contrary, I think the extra cost of hamallage far outweighs the cost incurred under other heads. There are, however, a number of stations on our line at which there is no goods* traffic, and one or two at which there is no coaching traffic, the cost of which should be charged entirely to coaching or goods respectively.

4. Mr. Jordan's proposal to divide abstract B (locomotive charges) on the train mileage on the ground that "although a goods train is much heavier than a passenger train, it runs at less speed, and the consumption of coal is consequently not much greater." Looking at the fact that on the G. I. P. line goods trains are about 74 per cent. heavier than coaching trains, and on our line over 106 per cent. heavier, I think the train mileage basis of division most unfair to coaching, and this is borne out by a return I have received from our Locomotive Superintendent, which shows that the consumption of fuel per coaching train mile is only about half of what it is by goods trains, the respective quantities being—

	Half-year ending June 1883.	Half-year ending December 1883.
	lb	lb
These are not actual but approximate figures based on 4 months' actual consumption.		
Per coaching train mile ...	31'05	31'91
Per goods do. ...	61'28	63'69

* Carnac Bandar and Udu salt sidings. Colaba and Grant Road coaching and goods staffs are kept separate.

The consumption on the respective services being as nearly as possible in the ratio of the average gross weight of the trains, which was as follows:—

		Half-year ending June 1883.	Half-year ending December 1883.
		Tons.	Tons.
Average gross weight of a coaching train	...	216.80	212.63
Do. do. of a goods do.	...	435.02	440.06

5. It is in the division of the locomotive expenses where I think the gross ton mile specially applicable and the train mile most unfair. The following figures show the division on both bases:—

		JUNE 1883.		DECEMBER 1883.	
		Coaching.	Goods.	Coaching.	Goods.
On gross ton mile	...	201,909	683,173	216,017	449,205
On train mile	...	329,488	555,594	331,821	233,401

the division on the train mile throwing 63 per cent. more on to coaching in June and 54 per cent. more in December.

6. With regard to abstract G. As about 70 per cent. of the charges in this abstract relate entirely to goods, in our case, it would be most unfair to divide the whole by train mileage. It would have the effect of unduly charging coaching to the extent of about Rs. 17,000 in a half-year.

7. In para. 3 of his memorandum of 10th March, Mr. Rendel says, with reference to the division on gross ton mileage—"Of all the methods of approximation which I have seen, the one which, to my mind, is farthest from the truth is that now employed by the Government, namely, division of expenditure in the proportion of gross weight of trains." A glance at the accompanying comparative statement of four methods of division will show that Mr. Rendel's proposed method,—namely, on the fuel consumed on the respective services,—throws only 2.66 per cent. more of the divisible charges on to coaching for the half-year ending June 1883 and 4.45 per cent. more in the December half-year than on a division in proportion to the gross ton mileage, the difference being equal to about 2½ annas per train mile in the former and 4 annas per train mile in the latter period.

8. The coaching and goods proportions of the gross ton mileage and of the fuel consumed during the respective half-years were—

		JUNE 1883.		DECEMBER 1883.	
		Coaching.	Goods.	Coaching.	Goods.
		Per cent.	Per cent.	Per cent.	Per cent.
Gross ton mileage	...	22.81	77.19	32.47	67.53
Fuel consumed	...	25.47	74.53	36.62	63.38

9. The division on the method I have adopted throws on the whole only 2.80 per cent. more on to coaching than a division on the gross ton mileage in the first-half, while the result by the two methods is almost the same in the second half-year, there being a net difference of only 0.22 (about 3½ annas) per cent. in favor of coaching.

10. But although the final results are nearly the same by both methods, the various abstracts are affected to the following extent:—

		JUNE.		DECEMBER.	
		More to coaching.	Less to coaching.	More to coaching.	Less to coaching.
ABSTRACT.					
C—Carriage and wagon charges	...	13,469	...	...	24,898
D—Traffic	...	63,973	...	30,300	...
E and G—General and miscellaneous	...	...	3,796	...	10,723
		77,442	3,796	30,300	35,621
Net	...	73,646	...	...	5,321

There can be no doubt as to the fairness of the method of apportioning abstract C, and I think the same may be said in regard to abstracts E. and G. Of the latter over Rs. 2,000 have been charged *direct* to coaching in each half-year, and nearly Rs. 37,000 direct to goods in the first and over Rs. 50,000 in the second half-year; these charges forming over 66 per cent. and 72 per cent., respectively, of the total of abstract G.

11. The charges under abstract D are apportioned as approximately as possible between coaching and goods on the basis described in the accompanying appendix.

12. The division in proportion to gross ton mileage was recommended by the Statistical Committee after careful consideration, as forming, on the whole, a basis preferable to any that had been proposed; and I am of opinion that the results are sufficiently near for all practical purposes.

13. I enclose an extract on the subject from Major Dowden's office note, dated 18th February 1876, which was appended to the report of the Statistical Committee (see page XXVI).

Extract from MAJOR DOWDEN'S office note, dated 18th February 1876, embodied with the report of the Statistical Committee of 1880 (see page XXVI).

In the first place the mixed train mileage is divided by a wrong method, and in the second place, the division of expenses between passengers and goods is based on an erroneous principle. The former point has been taken up in Statistical memorandum No. 29, and it is shown that the only correct method of division is by the gross ton mileage. The second point has been investigated in memorandum No. 5 and No. 4. No. 5 is an examination of the mode by which Mr. Rendel, the India Office Consulting Engineer, arrived at his conclusions, and No. 4 contains an exposition of the proposition that the only fair way to divide the expenses between passengers and goods is on the gross ton mileage proportion of work done for either traffic. The Consulting Engineer, Bombay, seemed sure that this method would be accepted by the Bombay railways; it has the recommendation of having been generally adopted by Mechanical Engineers from the earliest times, and is practically correct and simple in application.

BOMBAY, BARODA AND CENTRAL INDIA RAILWAY.

HALF-YEAR ENDING 30TH JUNE 1883.

HALF-YEAR ENDING 31ST DECEMBER 1883.

	Gross ton mileage Train mileage Quantity of fuel consumed	No. " " Tons	Coaching. 90,422,775 417,085 5,996	Goods. 305,951,218 703,304 17,545	Percentage on the whole.				Percentage on the whole.				REMARKS.	
					Divisible expenditure, Rs. 26,27,746.		Goods.		Coaching.		Goods.			
					Coaching.	Goods.	Rs.	Per cent.	Coaching.	Goods.	Rs.	Per cent.		
					Rs.	Per cent.	Rs.	Per cent.	Rs.	Per cent.	Rs.	Per cent.		
1. Present Government system (see analysis)	...	...	...	...	5,99,454	20,28,292	1'44	2'88	1'27	1'27	19,58,436	25'47	74'53	
Per train mile	...	...	...	...	1'44	2'88	1'44	2'88	1'27	1'27	19,58,436	25'47	74'53	
Per gross ton mile	...	...	...	...	1'27	1'27	1'27	1'27	1'27	1'27	19,58,436	25'47	74'53	
2. Mr. Rendel's proposed method	...	...	...	...	6,69,310	19,58,436	1'60	2'78	1'42	1'23	19,58,436	25'47	74'53	
Per train mile	...	...	...	...	1'60	2'78	1'60	2'78	1'42	1'23	19,58,436	25'47	74'53	
Per gross ton mile	...	...	...	...	1'42	1'23	1'42	1'23	1'42	1'23	19,58,436	25'47	74'53	
3. Mr. Jordan's method (including same charges as in Government analysis)	...	...	...	...	8,29,220	17,98,526	1'99	2'56	1'77	1'13	17,98,526	31'56	68'44	
Per train mile	...	...	...	...	1'99	2'56	1'99	2'56	1'77	1'13	17,98,526	31'56	68'44	
Per gross ton mile	...	...	...	...	1'77	1'13	1'77	1'13	1'77	1'13	17,98,526	31'56	68'44	
4. Another method*	...	...	...	...	6,73,100	19,54,646	1'61	2'78	1'43	1'23	19,54,646	25'61	74'39	
Per train mile	...	...	...	...	1'61	2'78	1'61	2'78	1'43	1'23	19,54,646	25'61	74'39	
Per gross ton mile	...	...	...	...	1'43	1'23	1'43	1'23	1'43	1'23	19,54,646	25'61	74'39	

	Gross ton mileage Train mileage Quantity of fuel consumed	No. " " Tons	Coaching. 92,313,439 434,206 6,312	Goods. 192,027,704 436,364 10,786	Percentage on the whole.				Percentage on the whole.				REMARKS.	
					Divisible expenditure, Rs. 23,85,512.		Goods.		Coaching.		Goods.			
					Coaching.	Goods.	Rs.	Per cent.	Coaching.	Goods.	Rs.	Per cent.		
					Rs.	Per cent.	Rs.	Per cent.	Rs.	Per cent.	Rs.	Per cent.		
1. Present Government system (see analysis)	...	...	...	...	7,74,644	16,10,868	1'78	3'69	1'61	1'61	15,04,805	36'92	63'08	
Per train mile	...	...	...	...	1'78	3'69	1'78	3'69	1'61	1'61	15,04,805	36'92	63'08	
Per gross ton mile	...	...	...	...	1'61	1'61	1'61	1'61	1'61	1'61	15,04,805	36'92	63'08	
2. Mr. Rendel's proposed method	...	...	...	...	8,80,707	15,04,805	2'03	3'45	1'83	1'50	15,04,805	36'92	63'08	
Per train mile	...	...	...	...	2'03	3'45	2'03	3'45	1'83	1'50	15,04,805	36'92	63'08	
Per gross ton mile	...	...	...	...	1'83	1'50	1'83	1'50	1'83	1'50	15,04,805	36'92	63'08	
3. Mr. Jordan's method (including same charges as in Government analysis)	...	...	...	...	9,74,722	14,10,790	2'24	3'23	2'03	1'41	14,10,790	40'86	59'14	
Per train mile	...	...	...	...	2'24	3'23	2'24	3'23	2'03	1'41	14,10,790	40'86	59'14	
Per gross ton mile	...	...	...	...	2'03	1'41	2'03	1'41	2'03	1'41	14,10,790	40'86	59'14	
4. Another method*	...	...	...	...	7,69,323	16,16,189	1'77	3'70	1'60	1'62	16,16,189	32'25	67'75	
Per train mile	...	...	...	...	1'77	3'70	1'77	3'70	1'60	1'62	16,16,189	32'25	67'75	
Per gross ton mile	...	...	...	...	1'60	1'62	1'60	1'62	1'60	1'62	16,16,189	32'25	67'75	

* As described in the next page.

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Division of Expenditure between Coaching and Goods.

Abstracts.	Main and Sub-heads.	Division.
A	Maintenance of Way, Works and Stations	Divide on gross ton mileage.
B	Locomotive Expenses	Ditto ditto.
C	Carriage and Wagon Expenses	Charge cost of repairs of coaching vehicles to coaching and of goods vehicles to goods, and divide the remainder of the charges in this abstract between coaching and goods on the actual cost of repairs.
D	Traffic Expenses, Salaries and Wages—	Proportions. †
	General Superintendence, Office Establishment, Travelling Allowances, Contingencies	Coaching. 38% Goods. 62%
	Station Staff	38% 62%
	Train Staff	56% 64%
	Fuel, Lighting, Water and General Stores.	
	1. Fires, Light and Water	‡ ‡
	2. Wagon Covers, Ropes, &c.	Charge all to goods.
	3. Office and Station Fittings and Furniture	‡ ‡
	4. Printing, Stationery, and Tickets	‡ ‡
	5. Charges for delivery and collection of goods*	All to coaching.
		Divide all the rest 38% to coaching and 62% to goods.
G	Special and Miscellaneous Expenditure—	
	1. Law Charges	As general charges.
	2. Compensation	Charge all to goods for goods lost or damaged, and the remainder according to circumstances.
	3. Rates and Taxes (including Municipal Water-rates)	As general charges.
	5. Payments to other Lines—	
	1st.—Hire of Locomotives	Gross ton mileage.
	* 2nd.—Hire of Vehicles	Charge to goods or coaching according to the description of vehicle.
	* 3rd.—Mileage of Foreign Stock	Ditto ditto.
	* 4th.—Rent of Stations jointly occupied	According to circumstances, whether used for coaching or goods, or both.
	5th.—Toll on Carnac Bridge traffic	Charge all to goods.
	6th.—Prizes for Station Gardens	Coaching.
	7th.—Miscellaneous Expenditure	
	4. Fees paid to Bombay Port Trust for goods loaded and unloaded on their property at Carnac Bridge	Charge to goods.
	5. Conservancy	Charge to coaching. The remainder divide as general charges.
E	General Charges	Divide in proportion to all the other Abstracts when the result has been arrived at as described above.

* For amount in excess of receipts from other lines under these heads.
Only parcels are delivered by contract on the B., B. & C. I. line.
† These proportions represent the approximate cost of the respective services.

GREAT INDIAN PENINSULA RAILWAY.

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No. 412 R. T., dated the 11th May 1885.

From—The Under-Secretary to the Government of India, Public Works Department.

To—The Governments of Madras and Bombay.

The Director General of Railways.

The Consulting Engineers to the Government of India for Guaranteed Railways.

With reference to Public Works Department letter No. 449 R. T., dated the 22nd May 1884, circulating, for opinion, papers on the subject of the *division of the expenses* of working railways between *Coaching* and *Goods*, I am directed to state that the Government of India considers it desirable to elicit further opinions on a proposal now made to record (for statistical purposes only) the *fixed* and variable expenditure separately.

2. Extracts from a note by Major L. Conway-Gordon, R. E., are appended to explain what is intended, and the Government of India would invite the Agents of guaranteed railways and the Managers of state lines to furnish an abstract of the Revenue Account for the 1st-half of 1884, divided off as proposed with explanatory notes showing reasons for the division.

Extract from a note by Major L. Conway-Gordon, R.E., dated the 19th March 1885.

"It appears to me that the case is hardly in a sufficiently digested state to send Home. It consists at present of little but isolated and disconnected opinion.

"But the whole discussion is extremely hopeful. There is a general inclination to differentiate '*fixed*' from '*running*' or '*variable*' charges. If this were done in the first instance, the subsequent division of the running charges between passengers and goods, would, I think, be found comparatively easy, for the greater bulk of them, such as coal, oil, &c., can be divided of between the two heads with absolute accuracy.

"We should then get—

(a) a lump sum representing the fixed charges, which * * * * would not require to be divided off between passengers and goods at all; and

(b) the running charges, very fairly accurate, per passenger and goods ton-mile.

"All that would be further required * * * * would be to divide off (a) between passengers and goods. This might be done on the present empirical system * * * * and a final result obtained showing the total cost per passenger and goods ton mile, exactly corresponding to the results now published.

"If the figures obtained *previous* to the division of the fixed charges (A) were printed in one type, and those subsequent to the division of (A) in another type * * * * , there would be no break in the present statistical record, a point, I think, of some importance."

Note by MAJOR W. SEDGWICK, R.E., Deputy Consulting Engineer to the Government of India, Calcutta, on the enclosure to letter No. 994 T.R., dated 29th October 1885, from the Government of India.*

I have not had an opportunity of seeing the whole of the opinions stated by Major Conway-Gordon, R.E., in his note which forms the enclosure to letter No. 994 R. T. of 1885, from the Government of India, to have been recorded by the various railway administrations, in reference to Mr. Rendel's proposal to apportion the working expenses of railways between coaching and goods traffic on the basis of the fuel consumption upon each.

I may remark, however, that the correspondence brings out generally the fact that it is beginning to be recognised that the subject of railway working requires scientific treatment; and in particular indicates three points in which

W. I. LEBRETON,
Examiner of Railway Accounts.

HALF-YEAR ENDING 30TH JUNE 1883.				HALF-YEAR ENDING 31ST DECEMBER 1883.					
Gross ton mileage	...	No.	Coaching.	Goods.	Gross ton mileage	...	No.	Coaching.	Goods.
Train mileage	...	...	217,845,591	1,039,244,164	Train mileage	...	...	237,611,287	567,153,416
Quantity of fuel consumed	...	Tons	1,315,283	3,606,257	Quantity of fuel consumed	...	Tons	1,383,933	1,921,630
			20,624	87,091				18,802	52,037
				Divisible expenditure, Rs. 91,31,064.		Divisible expenditure, Rs. 79,13,296.		Percentage on the whole.	
				Coaching.	Goods.	Coaching.	Goods.	Coaching.	Goods.
				Rs.	Rs.	Rs.	Rs.	Per cent.	Per cent.
1. Present Government system (see analysis)				15,82,355	75,48,709	23,36,653	55,76,643	29.53	70.47
Per train mile				Rs. 1.20	3.09	1.69	2.90	...	...
Per gross ton mile				Pies 1.39	1.39	1.89	1.89	...	...
2. Mr. Rendel's proposed method				17,48,309	73,82,755	21,00,337	58,12,959	26.54	73.46
Per train mile				Rs. 1.33	2.05	1.52	3.03	...	...
Per gross ton mile				Pies 1.54	1.36	1.70	1.97	...	...

the present method of dividing the working expenses of railways between coaching and goods traffic, with a view to ascertain the carrying cost per mile of an unit of passenger or goods traffic, is faulty.

The first of these three points is that, the present method of dividing the working expenses between coaching and goods traffic does not take account of the difference of speed at which the two classes of traffic are carried; whilst, in reality, difference of speed largely affects the carrying cost, both directly in the matter of haulage and wear and tear, and indirectly in the cost of establishments which must necessarily pay much more attention to details and to efficiency with a high speed than with a low speed only. This point is brought to notice by Mr. Rendel in his memorandum forming one of the enclosures to letter No. 37 Ry., dated 3rd April 1884, from the Secretary of State.

The second point is that with the present method of dividing the working expenses, the items of expenditure incurred solely on account of one class of traffic are not taken out and charged off at once to their proper heads; but the whole expenditure, whether incurred upon one class of traffic solely, or upon both classes conjointly, is divided between coaching and goods traffic upon the same arbitrary basis. This point is brought to notice by the Agent of the East Indian railway, in his letter No. 1106-G., dated the 17th October 1884.

The third is the point brought forward by Major Conway-Gordon, who has shewn in his note forming the enclosure to letter No. 994 R. T. of the 29th October 1885, from the Government of India, the desirability of separating charges which are fixed, and do not rise with an increase of traffic, from charges which do rise with an increase of traffic.

But though the above three points have been prominently put forward, no one, as far as I am aware, has noticed the most important point of all, *viz.*, the necessity of modifying the present practice of including in the accounts, of particular half-years items of expenditure, such as charges for renewal of rolling stock or permanent-way, etc., which ought properly to be spread over a number of half-years; also abnormal expenditure such as that due to floods, etc.

It is plain that the present method of shewing expenditure of these kinds, often excessively heavy in the Revenue Account of the particular half-year in which it is incurred, not only vitiates all calculations and comparisons based upon on the half-yearly Revenue Accounts in which it appears, but also offers an inducement to Managers to postpone renewals which are urgently required in order to show profits which are in reality fictitious; whilst those who come after them, have to work the lines when renewals thus postponed have subsequently to be done off-hand, are disheartened by the knowledge that the results of their working must be unfavourable, and must shew badly in comparison with previous years.

A close approximation can be made to the average length of life, expressed in years, of all kinds of rolling stock and of permanent-way material; and also to the average length of life expressed in miles run, in the case of rolling stock. The proper way, therefore, of dealing with expenditure of this kind of renewals, unquestionably is to charge it all off to a fund provided by entering in each half-yearly Revenue Accounts, from the date of the opening of the line to traffic, a fixed amount for every locomotive, carriage, wagon, rail, sleeper, etc., upon the line, representing the cost divided by the estimated length of life in half-years of each locomotive, carriage, etc., with an addition in all half-years in which traffic is abnormally heavy proportionate to the extra mileage run in order to cover the increased wear and tear with heavy traffic, so as thus to distribute the cost of renewals equally over the half-years in which it is really incurred.

The accumulations in the fund need not lie idle. They could be utilized when no renewals had to be done on works properly chargeable to capital, on the understanding that sums so advanced to capital would be repaid by capital whenever expenditure on renewals became necessary.

In the case of guaranteed railways not earning profits sufficient to cover the guaranteed interest, on which, therefore, the creation of funds is objectionable

owing to the whole cost being in such cases borne by Government, the charges for renewals might be entered in a separate account, and though included in a final balance sheet, not shown at all in the Revenue Account proper except as a fixed sum as on other railways.

Abnormal expenditure due to floods or to charges for hire of rolling stock on lines not equipped at the cost of capital, or to other causes, might also be entered in a separate account, and though brought into a final balance sheet, not shown at all in the Revenue Account proper except in the case of abnormal expenditure due to charges for hire of rolling stock, which would be met by charging a fixed sum in the Revenue Account, corresponding to the fixed sum for renewals on other lines.

If expenditure on renewals and abnormal expenditure is dealt with in the manner pointed out, it is plain that all lines will, so far, be placed upon the same footing, and the Revenue Accounts for all half-years, on any one line, be strictly comparable one with another. Hence the value of comparisons instituted between the result of working on different lines, and at different periods on the same line, will obviously be greatly enhanced. At present, by selecting half-years in which heavy expenditure was incurred on renewals, floods, etc., and others in which no such expenditure was incurred, it may plainly be possible, in some cases, to make the Revenue Accounts of the same railway support, at different times, conclusions of directly opposite tendencies.

No. 278, dated the 2nd September 1884.*

From—E. V. JORDAN, Esq., Auditor, G. I. P. railway,

To—The Agent, G. I. P. railway.

Apportionment of working expenses between coaching and goods traffic.

I understood Colonel Hannock to say at Poona that he wished to have this matter talked over at a meeting, and so I kept the following letter and enclosure which were ready on 31st July last.

When I wrote to you my letter of 30th* June 1883, I was feeling the inconvenience of having two systems of apportioning these charges. We had the Government analysis, and yet it was customary to prepare certain statements, as well as fill in certain tables in reports, upon Mr. Rendel's method. These two conflicted, so I suggested that it would be well to consider which we should adopt and to abide by it; and, while I recommended, chiefly for the sake of uniformity with other lines, the adoption of the analysis by preference to Mr. Rendel's method, I expressed the opinion that, if necessary, we could get the approximate cost even nearer than the analysis, and my reason for this statement was that the analysis takes freight and dead weight of coaching and goods vehicles, and divides all the expenditure in the proportion which these bear to each other. It may not be possible to work out what effect speed has, but that wear and tear is greater with high speed than with low speed may be conceded. Thus, the weight actually hauled must form a wrong basis unless it can be qualified by some allowance for speed. I therefore wish to suggest that certain known, or easily ascertainable, items in abstracts B, C, G and K, shall be taken out before this division is made, for instance, fuel, running expenses, maintenance and renewals, payments to other lines, and rents of dwelling houses. The analysis, too, divides the expenditure under abstract C, in the same way as all the rest, although the actual expenditure under the headings of coaching and goods stock is, for the greater part, readily divisible. Thus, in the half-year ending 30th June 1883, the repairs and renewals of coaching and goods stock on this railway, amounted to Rs. 5,05,495 and Rs. 6,02,557, respectively, but the analysis divides the total (Rs. 11,08,052) in the proportions of 1,009 to 218, giving in round numbers Rs. 9,18,000 to goods instead of Rs. 6,02,557, and Rs. 1,90,000 to coaching, instead of Rs. 5,05,495, and the analysis takes in such matters as carriage of revenue stores, which is a debit made twice; once, in the coal burnt, wear and tear, wages, etc., and secondly, in the unclassified expenditure.

* Received with letter No. 1024, dated the 1st May 1886, from the Government of Bombay to the Government of India.

I made my suggestion in respect of calculations for our own information only. In fact, I merely roughly sketched the thing out, leaving more detail, till I saw whether any alteration would be entertained, or not, and I was surprised to find that it had gone to the different Indian railways in its somewhat crude state.

I think the first thing we should ask ourselves is,—“What do we expect to get? and to what uses are we going to put what we do get? Are we to be content with an approximate estimate of the probable average cost of running passenger and goods trains and their loads? Or is it expected that the result is to be a guide to the fixing of goods rates and to be considered to be practically correct?”

If it is to be looked upon as merely an estimate to be used somewhat in the following :—

A passenger train costs (say) Rs. 1-15-10 per mile to work. A train between Bombay and Poona earns so much in the half-year. Divide this sum by the number of days and the number of miles. If it compares favourably with Rs. 1-15-10, it is a good train, if not it wants looking into.

Then I think the analysis is sufficient. If, however, such practical exactness is expected that we may regulate goods rates by it, I would ask “Can we, with any degree of safety, deal with results obtained by making assumptions in a more or less arbitrary manner and multiplying and dividing them?”

The first question therefore that I should like to clear up is—
To what extent do we admit that it is possible to divide the total expenditure between coaching and goods traffic?

Having arrived at this, we might consider,—

What is the simplest way to arrive at that information accurately enough for our purposes?

If it be considered that we can work the division near enough to be a safe guide in fixing goods rates, I would suggest a calculation like the enclosed, and to separate what I may call actual haulage charges, and wear and tear, caused by traffic from superintendence, standing charges, climatic deterioration (estimated), and take out any double debits like carriage of revenue stores. By this means we shall get an estimate of the actual out-of-pocket cost of hauling extra traffic by making a distinction between varying and standing charges.

That a considerable item in our yearly expenditure is scarcely influenced by increased or decreased traffic, is well known; and if we are going to refine this division of expenditure down to be a guide to the fixing of goods rates, I would remark that I think we should not apply any result arrived at in too arbitrary a way, but merely look upon it as the best estimate for purposes of information.

I append my more complete suggestion, and beg to remark that the present seems a good opportunity to put the matter at rest for some time to come.

If my proposed plan should be considered too complicated, I would reduce my proposal to a separation of wages, coal, and repairs and renewals in abstract B,—wages and repairs and renewals in abstract C,—under ascertainable heads. I would take out rents of dwelling houses; put, as a rule, payments to other lines under goods, and divide the balance either by train, or gross ton mileage as may be thought best.

Carriage of revenue stores and any other double debits would be, of course, left out.

I should like a small committee of three or four Auditors to meet and draw up a draft for approval.

GREAT INDIAN PENINSULA RAILWAY.

Suggested mode of division of expenditure between coaching and goods trains, so as to show the estimated cost of actual haulage separate from standing charges.

HALF-YEAR ENDING 30TH JUNE 1883.			
	Coaching.	Goods.	TOTAL.
	Rs.	Rs.	Rs.
Abstract A— Take out Superintendence, Special Funds, Carriage of Revenue Stores, and deduct rents of dwelling-houses (Abstract K) (Divide remainder in the proportions of gross ton mileage (freight and dead weight) of Coaching and Goods Traffic.) <i>Note.</i> —This is the divisor which recommends itself the most, but it does not get over the element of speed. There is also climatic deterioration to sleepers and rails as well as disturbing influences to earthwork and ballast which goes on quite independent of the amount of traffic.	2,94,132	14,03,175	16,97,307
Abstract B— Take out Superintendence and Carriage of Revenue Stores (Divide in the proportion of train mileage.) <i>Note.</i> —It ought to be easy to ascertain the amount of fuel burned by goods trains and by passenger trains, and to divide that of mixed trains according to the proportion of carriages to wagons on these trains. It ought also not to be difficult to divide all Wages and Maintenance and Renewals under these heads.	8,20,680	22,50,151	30,70,841
Abstract C— Take out Superintendence and Carriage of Revenue Stores <i>Note.</i> —The cost of repairs and renewals for Coaching and Goods are known; insert under proper headings. (Divide remainder by vehicle mileage.)	5,39,157	7,47,100	12,86,257
Abstract D— Take out Superintendence and Carriage of Revenue Stores (Divide remainder by train mileage.) <i>Note.</i> —This might be reduced by an estimated deduction for Station Staff, as a good deal of that is a fixed charge.	3,12,402	8,56,549	11,68,951
Other expenditure—			
Police	Rs. 64,785		
Advertising	2,448		
Telegraph	1,51,379		
Law charges	1,086		
Compensation, less sales of damaged goods	Cr. 19,835		
Rates and taxes	15,685		
Sundries	11,656		
	60,720	1,66,484	2,27,204
(Divide by train mileage.)			
Payments to other lines— May be put entirely under goods	...	1,73,101	1,73,101
Deduct— Exceptional expenditure due to improvement of stock, debited to Revenue, or Special Expenditure under any heading		If any.	
Add— Expenditure not incurred by reason of extra busy season, or stock not being available, or by reason of failure of workshops		If any.	
TOTAL (A)	20,27,091	55,96,560	76,23,651
Per train mile	1'541	1'552	1'549

By plan No. 3--

For Coaching $\frac{15,276,278}{46,214,035} \times \text{Rs. } 3,96,21,213 = 331 \times (a + b)$.

„ Goods $\frac{30,933,757}{46,214,035} \times \text{Rs. } 3,96,21,213 = 669 \times (a + b)$.

Plan No. 3 gives a proportion very nearly half-way between the other two. No. 1 is probably too heavy on the goods and No. 2 too heavy on the passengers. I shall therefore assume a proportion of $\frac{1}{3}$ for coaching and $\frac{2}{3}$ for goods as sufficiently exact for my purpose.

The total cost of carrying a passenger unit will therefore be—
 $\frac{1}{3} (a + b) \div 917,606,000 = 2.36 \text{ pie.}$

and of a goods unit—

$\frac{2}{3} (a + b) \div 1,022,078,000 = 4.94 \text{ pie.}$

The total cost of running a passenger train one mile will be—
 $\frac{1}{3} (a + b) \div 3,403,000 = \text{Rs. } 3.88$.

and of a goods train-mile—

$\frac{2}{3} (a + b) \times 4,914,000 = \text{Rs. } 5.37$.

The gross receipts per train are—

For Coaching $\frac{a}{3,403,000} = \text{Rs. } 4.489$. Profit Rs. 0.61.

„ Goods $\frac{b}{4,914,000} = \text{Rs. } 6.296$. Profit Rs. 0.93.

and gross receipts per unit—

For Coaching $\frac{a}{917,606,000} = 3.20 \text{ pie.}$ Profit 0.84 pie.

„ Goods $\frac{b}{1,022,078,000} = 5.81 \text{ pie.}$ Profit 0.87 pie.

The goods unit above being a ton-mile to reduce it to maunds $\div 27$, and the result will be—

Cost of carrying 1 maund per mile 0.183 pie or about half-way between $\frac{1}{3}$ and $\frac{1}{6}$ pie.

The average charge is per maund per mile 0.215 pie or about half-way between $\frac{1}{3}$ and $\frac{1}{6}$ pie.

Extract paragraph 4 from a note, dated the 3rd July 1893, by Lieutenant-Colonel G. F. O. Boughey, R.E., Manager, North Western railway, on proposed reduction in 3rd class fares

4. I desire to add a word of caution regarding the supposed profits from passenger traffic. The cost shown in our statistics depends largely on our division of expenses between coaching and goods. The correctness of this division was challenged a good many years ago and opinions were called for from different railways; and I then wrote a note* upon it. No action appears to have been taken in the matter. My opinion is and has been that the old division by train mileage threw an undue proportion of the cost on coaching traffic, and that the present division by ton mileage throws an undue proportion of the cost on goods traffic, and I suggested at the time that a mean between the two should be taken as the fairest approximation to the truth. I therefore think that the profit on passenger traffic shown in our statistics is larger than the real profit, and that the reduction advocated by some people would leave us with little or no profit at all—certainly without a profit commensurate with our expenditure.

* Vide pages 30 to 32 ante.

Extract from a note, dated the 14th July 1893, by Major W. V. Constable, R.E., on the subject of the reduction of third class fares.

3. * * * For a long time also, I had been a believer, that the division of coaching and goods expenses on the basis of the gross ton mileages of goods and passengers, as shown in the Director General of Railways' statistics for Indian railways, was unfair to goods and was very favourable to coaching traffic, and that these statistics were principally useful as a basis of comparison with the results of other railways, and were of very little value in arriving at actual cost of carriage. The statistics, so I held, are very far from representing the actual cost of carrying a passenger or goods unit or of running a passenger or goods train, and it is my belief that goods are paying for passengers both in India and in England, especially in the latter country.

4. * * * * * Even, if the division of expenses were made on the basis of train mileage or on that of the respective coaching and goods earnings, it would not, in my opinion, go far enough to make the figures represent the real cost of working each kind of traffic. I believe myself, as has been stated by more than one recent writer, that the high goods rates of English railways (some of them working under as favourable conditions as American railways with which they have been compared) are due, not only to the bad design of goods stock possessed by the English lines, which I admit is the most important factor, but also to the fact that the goods traffic pays in a large measure for the comparatively empty stream of unprofitable express passenger trains.

5. A study of the statistics of Indian railways will shew, that in every case, the cost of running a coaching train one mile is shewn as being considerably less than the cost of running a goods train one mile, and in some cases it amounts to less than 50% of the cost, and further, that the earnings of a goods train per mile are in nearly every instance greater than the earnings of a coaching train per mile. I am unable to accept the first as a fact and I honestly believe, if it were possible to accurately ascertain it, that the actual average cost of running a coaching train on any line, would be found to be more than the cost of running a goods train, and I can see no reason, therefore, why a coaching train should not earn more than a goods train. In addition to the actual working cost, I should feel inclined to debit five-eighths of the interest on capital to coaching to arrive at a fair approximation of the expense of working passenger traffic over any railway.

* * * * *

10. In conclusion I would point out how necessary it is, before any bold experiment in reducing fares is entered upon, to obtain more reliable data, first, as to the wages and savings, the habits and the motives of the journeys of the poorest classes which it is desirable to secure to the railway; and secondly, to determine as near as possible, what the actual cost of carrying a unit of goods and coaching traffic is, not just now perhaps, but a little later on, when wider carriages have been built, and the tare to freight of both coaching goods stock has been improved, and when it has been seen how the conveniences now in train to be provided to the Indian travelling public have effected the cost of working. I can see no necessity for hurry in the matter. Indian railways are only in their infancy, and the existing mileage will probably be trebled before the country is adequately supplied with railway communication.

No. 119.

FROM

THE SECRETARY,
RAILWAY CONFERENCE OF 1893.

TO

THE AGENTS, BOMBAY, BARODA AND CENTRAL INDIA, GREAT INDIAN PENINSULA,
EAST INDIAN, SOUTH INDIAN, SOUTHERN MAHRATTA, AND INDIAN MIDLAND
RAILWAYS.
THE AGENTS AND CHIEF ENGINEERS, BENGAL AND NORTH-WESTERN, ROHILKUND
AND KUMAON, AND BENGAL-NAGPUR RAILWAYS.
THE AGENTS AND MANAGERS, MADRAS, AND HIS HIGHNESS THE NIZAM'S GUARAN-
TEED STATE RAILWAYS.
THE MANAGERS, NORTH WESTERN, EASTERN BENGAL STATE, OUDH AND ROHIL-
KHAND, BURMA STATE, AND JODHPORE-BICKANEER RAILWAYS.
THE MANAGER AND ENGINEER-IN-CHIEF, BHAVNAGAR-GONDAL-JUNAGARH-PORBAN-
DAR RAILWAY.
THE AGENT AND GENERAL MANAGER, DARJEELING-HIMALAYAN RAILWAY.
THE SECRETARY, CALCUTTA PORT COMMISSIONERS' RAILWAY.

Simla, the 23rd August 1893.

SIR,

In continuation of my letter No. ¹⁰⁰~~76~~ dated the ^{16th August}~~16th December~~ 1893,
forwarding ^{revised} lists A and B of the subjects to be placed before the Railway
Conference of 1893, I am directed to forward a copy of the papers relat-
ing to question (f) No. (f) 22 of list B referred to, viz.,

No 22 B. Division of working expenses
between coaching & goods traffic

I have the honour to be,

SIR,

Your most obedient Servant,

Sy. A. Hart

Secretary.

23-8

Documents accompanying.

(As noted above.)

Three copies of the question.

4.1
OW 7364/93

No. 120, dated the 23rd August, 1893.

Copy, with copy of papers referred to, forwarded, for information, to the Secretary to the Government of India, Public Works Department; the Joint Secretary to the Government of Madras, Public Works Department (Railway Branch); the Secretary to the Government of Bombay, Public Works Department (Railway Branch); the Secretary to the Government of Bengal, Public Works Department; the Secretary to the Chief Commissioners of Burma and Assam, Public Works Department; the Secretary to the Resident at Hyderabad, Public Works Department; the Secretary to the Agent to the Governor General for Rajputana, Public Works Department; the Consulting Engineers for Railways, Bombay and Madras; the Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, Central Division, and Assam; the Agent, West of India Portuguese railway; the Agents and Chief Engineers, Assam-Bengal and Bengal Central railways; the Managers, Cherra-Companyganj and Jorhat railways; the Agent and General Manager, Dibru-Sadia railway; the Manager and Executive Engineer, Morvi railway; the Managing Agents, Deoghur and Thaton-Duyanraik railways; the Secretary and Agent, Nilgiri railway; and the Engineers-in-Chief, Mushkaf-Bolan, Mari-Attock, East Coast, Bhopal-Ujjain, and Bina-Guna railways.

By order,

H. Hunt
Secretary.
11/2

Documents accompanying.

(As noted overleaf.)

Five copies of the question.

The Joint Secretary to the
Government of Madras, P.W.D. Railway Branch,
Madras.

Encl 1

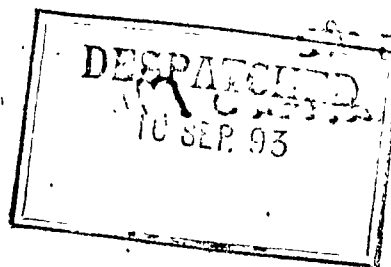
Recd: 28-8-53

15

Ms. 1183 R 37. Sept 93.

Communicated
to the Examiner-General
Railway Accounts..

7/11/63 R



Frederick B. Ry. Acad.

1879

2

RAILWAY CONFERENCE, 1893.

B

Papers circulated in the event of railways, parties to the Conference, having any definite proposals to bring forward for discussion thereon.

No. 14.

PAY AND ALLOWANCES OF ENGINE DRIVERS, FIREMEN AND SHUNTERS.

PAY AND ALLOWANCES OF ENGINE DRIVERS, FIREMEN AND SHUNTERS.

No. 538-M., dated the 10th March 1893.

From—The Manager, Eastern Bengal state railway,

To—The Secretary, Railway Conference.

With reference to your letter No. 38, dated 2nd November 1892, I have the honour to forward a brief note on each of the following subjects proposed for discussion at the forthcoming railway conference.

* * * * *

Scale on which drivers in India should be paid and the assimilation of overtime rules as far as practicable.

No. 222-A, dated 15th February 1893.

From—The Locomotive and Carriage Superintendent, Eastern Bengal state railway,

To—The Manager, Eastern Bengal state railway.

With reference to your No. 979 (Locomotive) of 22nd November last, I have the honour to state that by the mere lapse of time engine drivers, whether European or Eurasian can, on the present rules, attain to and they expect to receive, Rs. 200 per mensem, irrespective, frequently, of qualifications and the duties they perform. They may also, after certain approved service, rise to Rs. 220. Seeing the large amount of overtime and allowances, averaging often over 50 per cent. of their substantive pay, made by drivers on this system, there seems room for reform; and although it is not desired to interfere with vested interests or the pay and overtime of men already in the service, something can be done in the direction of economy, which would affect new employes only.

At present two separate scales of pay obtain,—one for Europeans and Eurasians, the other for natives. The latter is a class now very largely employed, and they are gradually working out Europeans and Eurasians; but where it is considered advisable to retain the services of Europeans for working mail and special trains, those drivers, possessing English experience are invariably preferred. Between these two classes there comes the European and Eurasian driver with country training and experience, and he is likely to be still largely employed for a considerable period. To meet this class therefore I would advocate the introduction of an intermediate scale arranged to meet goods, passenger, and mail drivers.

The existing rules are decidedly elaborate and complicated, they give rise to much correspondence, and the clerical labour involved in making up the accounts at the close of each month is considerable. Therefore, if a new scale is to be introduced, it is desirable that it should be regulated by the simplest rules. To this end the system of payment by actual work performed, or, in other words, the mileage run, seems the most equitable and easiest to deal with. Taking as a basis that a driver is paid a certain sum per mensem as, what may be practically termed, a retaining fee, then I would pay on that basis and in proportion to it for every mile run. Assuming, by way of illustration, that a man is paid at the rate of Rs. 100 (which would be about the initial salary proposed) per mensem, I would give him in addition an allowance of one day's pay for each 100 miles run over and above his substantive monthly pay, and this would cover all detentions and include night and day allowances. Therefore at the end of the month (of 30 days) a driver who had run 3,000 miles would receive exactly Rs. 200 per mensem. The calculation is made in a moment by the merest tyro in mathematics and can give no rise to question. Three thousand miles would be an average run when we are fairly busy, but heavier mileage is not infrequently made. The advantage of a system of this sort is that it is a direct incentive to men to stick to their work, due check being of course kept that they are not over worked. Under our present system a driver on, say, Rs. 200 can afford to take privilege or sick leave when the whim seizes him, and that drivers do abuse the rules, especially in the busy season, is, I regret to say, a common occurrence. It is a recognized practice for men to go off sick for several days and then claim to have the period converted into privilege leave. Such abuses would be put a

stop to when men appreciated the fact that they would only receive a mere nominal sum when off duty.

Another advantage to be derived by the introduction of a scale of pay based on this principle is that during slack seasons or bad times wages would be comparatively small, but during busy periods, when the railway could well afford it, overtime from regular work would be good, and it would not pay men to be off.

I attach a rough draft of the proposed scale of pay and rules governing the grant of overtime, which are practically the same as those the Locomotive Superintendent of the North Western railway advocates. Rules for Native drivers based on the same principle have been in force on that system for several years past and given general satisfaction to employers and employed on account of their equability and their simplicity, and the enormous amount of clerical labour saved.

Comparative statements are also annexed showing clearly how the proposed rules work as against those in force.

Busy and slack months have been taken to demonstrate the result during each.

The salaries of shunters and firemen would stand in proportion, as at present, to those of the drivers.

I approve. But think that if it is decided to adopt the proposals put forward, great care should be taken in introducing them to protect the interests of men now in the service, who would probably be dissatisfied if an arbitrary change were made without reference to claims.

The 10th March 1893.

S. FINNY,

Manager.

Rates for wages of drivers, shunters, and firemen, with rules for calculating time, overtime, and allowances.

Drivers.

From Rs. 90 to Rs. 150 per mensem substantive pay.

Shunters.

Shunters will be rated at Rs. 80 substantive pay per month and an allowance of 1 anna per hour when on duty in shed.

Firemen.

From Rs. 30 to Rs. 60 per mensem substantive pay.

All promotion from one grade to another, also increases in rate, will be made on merit by the Locomotive Superintendent, who has discretionary power to engage on any of the above rates, and promote from any one rate to any other irrespective of length of service.

Time and Overtime.

Number of hours per diem ...

Number of days per mensem ...

100 miles equal to one day's pay ...

1. In these rules the day is taken at 8 hours ; the month as the whole number of days in it.

2. An allowance of one day's pay will be made to all drivers and firemen for each 100 miles run ; this is over and above his substantive monthly pay, covers all detentions, and includes night and day expenses.

3. All shed and washing out must be done by the enginemen themselves, and is paid for in substantive monthly pay.

Shed and washing out

Payment for Sundays ...

Payment for running light engines ...

Ballasting time ; rate of payment of—

Shunting payment for a train engine.
Time claimed by Traffic Department
free of charge.

4. No extra remuneration beyond that provided for in above is allowed for working on Sundays or holidays.

5. Drivers taking light engines will be paid as if working trains.

6. The allowance for ballast and material trains will be 8 miles per hour from start to finish.

7. The Traffic Department can claim the use of all engines 15 minutes before starting and 15 minutes after arrival of trains, and drivers must be at the station that time before departure and after arrival. All extra shunting will be reckoned at 10 miles per hour, and the Traffic Department will issue orders at the following rate :—

Over 15 and under 30 minutes for 15 minutes.

" 30 " 45 " " 30 "

" 45 " 60 " " 45 "

and so on, and drivers will be paid for all such work when covered by an order.

8. As far as practicable 8 hours off duty at out stations and 12 hours at head-quarters will be arranged for, but in no case shall a man be called upon to go out under 6 hours except when unavoidably necessary, as in case of accident or break down.

Reduction service prior to counting
towards next promotion.

9. Drivers put back during slack seasons will be allowed to count time worked as drivers towards promotion, but men put back for misconduct will lose all advantages of service before that date.

Premium for saving in fuel and in oil.
also in proviso.

10. Premium will be given to drivers for economy in fuel and oil, but no man who misconducts himself or loses time will be eligible for award.

of each class, and proposed rules.

4

rules governing the grant of overtime, &c.

5

Total

Comparative statement showing amount earned by three classes of drivers, viz., mail, mixed, and goods, on the Eastern section, during slack and busy seasons, under the present and proposed rules.

Class of train and driver.	Total mileage run.	AS PER EASTERN BENGAL STATE RAILWAY EXISTING RULES.				AS PER EASTERN BENGAL STATE RAILWAY PROPOSED RULES.				RESULTS AS PER EASTERN BENGAL STATE RAILWAY PROPOSED RULES.		REMARKS.
		Rate of pay.	Total amount earned on account of pay.	Total amount earned on account of overtime, &c.	Total earnings.	Rate of pay.	Total amount earned on account of pay.	Total amount earned on account of overtime, &c.	Total earnings.	Increase.	Decrease.	
BUSY SEASON—												
<i>Mail—</i>												
One driver ...	4,220	Rs. 120 0 0	120 0 0	101 4 0	Rs. 221 4 0	Rs. 100 0 0	100 0 0	135 2 0	Rs. 235 2 0	Rs. 14 14 0	Rs. ...	Worked full month, 31 days.
<i>Mail, mixed—</i>												
One driver ...	3,508	Rs. 120 0 0	120 0 0	75 4 0	Rs. 195 4 0	Rs. 100 0 0	100 0 0	113 2 7	Rs. 213 2 7	Rs. 17 14 7	Rs. ...	Do. do. do.
<i>Goods—</i>												
One driver ...	3,449	Rs. 120 0 0	120 0 0	82 12 0	Rs. 202 12 0	Rs. 100 0 0	100 0 0	114 15 4	Rs. 214 15 4	Rs. 12 3 4	Rs. ...	Do. do. 30 days.
SLACK SEASON—												
<i>Mail, mixed—</i>												
One driver ...	3,727	Rs. 120 0 0	120 0 0	87 14 3	Rs. 207 14 3	Rs. 100 0 0	100 0 0	120 3 7	Rs. 220 3 7	Rs. 12 5 4	Rs. ...	Do. do. 31 days.
<i>Mail, mixed—</i>												
One driver ...	3,729	Rs. 120 0 0	120 0 0	87 8 0	Rs. 207 8 0	Rs. 100 0 0	100 0 0	120 4 8	Rs. 220 4 8	Rs. 12 12 8	Rs. ...	Do. do. do.
<i>Goods—</i>												
One driver ...	2,785	Rs. 120 0 0	120 0 0	76 0 0	Rs. 196 0 0	Rs. 100 0 0	100 0 0	92 13 3	Rs. 192 13 3	Rs. ...	Rs. 3 2 9	Do. do. 30 days.
TOTAL					Rs. 1,230 10 3				Rs. 1,297 9 5	Rs. 70 1 11	Rs. 3 2 9	Decrease due to small mileage

Appendix A to Question No. 14-B.

Note dated the 23rd July 1890, by Lieutenant-Colonel L. Conway-Gordon, R.E., on the pay and allowances of engine drivers on Indian railways.

From information recently supplied to me from some of the principal state and guaranteed railways I have been enabled to take up the question of the rates of the pay and allowances of engine drivers at present in force on Indian railways. The conclusion which I have come to is that there is room for some useful reform in this direction both in the interests of Government and of the railway companies. There is evidence to show that the salaries and allowances of drivers are maintained at too high a standard; and I am confident that some economy could be effected in this branch of expenditure.

2. As the co-operation of all railways in this movement is essential to success, this note is put forward for the information of all railway administrations generally; it being desirable that the opinions of all should be recorded before taking any action in the matter.

3. I may first observe that there are practically only two scales of pay at the present time, *i.e.*, the scales for the European and the Native: and that there appears to be a tendency to enlist natives as far as possible. It may also be taken for granted that when a railway from sufficient causes is forced to have a European driver on a high salary, the Locomotive Superintendent will in almost every case prefer to have a man from England, thoroughly well trained and brought up to use his hands, rather than a man born in this country who in most cases is comparatively deficient in vigour and inclined to shirk manual labour. These causes, under the present system of having only two scales of pay, will probably tend to edge out Eurasians and Europeans born in India from employment as drivers. To prevent this, it might be advisable to introduce another scale of pay, intermediate between the scales for Europeans and Natives, which would be more suitable for drivers without english training who are enlisted in this country.

4. Under the latest rules applicable to state railways, Managers are empowered to entertain drivers on any salary within a limit of Rs. 200, and shunters within a limit of Rs. 100. In specially approved cases drivers may receive Rs. 210 after 8 years and Rs. 220 after 9 years' service. No minima salaries are laid down, but Managers are evidently influenced in this respect by the minima salaries sanctioned under previous orders, and still continue to grant Rs. 110 and Rs. 120 as initial salaries. It is a question if these salaries, in the case of uncovenanted drivers, are not capable of some reduction. The same may perhaps be said for the guaranteed lines, the rates in force on some of which are shown in the attached schedule G.

5. I have had statements (A. to F.) drawn out showing the maximum, minimum, and average salary and allowances drawn by covenanted and uncovenanted drivers of six representative railways both in the slack and busy season.

From these I abstract the following information. The maxima salaries given

	Covenanted.	Uncovenanted.
	Rs.	Rs.
Eastern-Bengal state railway	200	200
North Western railway.	250*	250*
Bombay, Baroda and Central India railway.	208	208
South Indian railway	180	180
Madras railway	182	182
Great Indian Peninsula railway	200	200

* Consolidated salary, including frontier allowance.

to covenanted and uncovenanted drivers are as noted in the margin. It will be noticed that the rates of pay are almost identical for the two classes. It may be said that the salaries of the drivers engaged in England virtually govern the salaries of all the men. The idea that all European and Eurasian drivers are worth the same rates of pay has been allowed to exist for such a long time that it may be somewhat difficult to bring it home to the

Appendix A to Question No 14-B—contd.

men engaged in this country that they are too liberally treated when paid at the same rate as men who have had to leave their homes in England. My suggestion for dealing with this question is that, we should on each line arrange a fair and reasonable salary for the men engaged in India, and increase this by a personal allowance (to be called "colonial allowance" or any other suitable name) for the European driver; the amount of the allowance will settle itself, being the difference between the rate at which we can get drivers in India, and the minimum rate on which we can procure the European driver from home.

6. The question now arises as to how far the market rate of European and Eurasian drivers enlisted in this country can be reduced: it seems to me to be almost beyond doubt that the rate is susceptible of reduction, and that if all railways co-operate, a change could be effected without much difficulty. I do not think that the rate of salary in this case should exceed the salaries paid for the same class of men in Australia.

In order to arrive at a fair rate of salary for this class of driver it would be useful to have the opinions of Agents and Managers. If we are to confine ourselves to three rates of salary, *i.e.*, for covenanted, uncovenanted and native drivers, which arrangement appears to me to sufficiently to meet the case, it would perhaps be advisable to class Parsis with the uncovenanted drivers and not with Natives.

7. There seems to be less margin for economy in the case of native drivers (if Parsis are removed from this category) than in the case of other classes, but on this point too I would like to compare opinions from different railways.

8. I assume that the salaries of firemen and shunters of each of the above classes are capable of reduction in the same proportion as that effected in the case of the salaries of the drivers.

9. Turning now to "allowances", it seems to me that under this head also there may be found some possible economy. I would call attention to the following salaries and allowances which I have taken from the attached tables:—

Railway.	COVENANTED.			UNCOVENANTED.			NATIVES (PARSIS).		
	Pay.	Allowances.	Total.	Pay.	Allowances.	Total.	Pay.	Allowances.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
E. B. S. R. ...	200	144	344	200	121	321	...	...	...
N. W. R. ...	250	392	642	250	336	586	180	233	413
B. B. & C. I. ...	208	197	405	208	200	408	130	196	326
S. I. R. ...	180	114	294	170	95	265	...	...	...
Madras R. ...	218	65	283	175	105	280	...	...	...
G. I. P. ...	200	450	650	200	430	630	143	316	449
R. M. Ry. ...	...	...	...	200	224	424	180	201	381

The large allowances drawn by some of the men may give rise to the suspicion either that the men are dangerously overworked and are kept on the foot-plate many hours more than is desirable with due regard to the safety of the trains, or that overtime is remunerated at too high a rate; or perhaps to both causes combined. It is noticed that in several cases a driver draws more allowances than salary, and in some cases more than double. This suggests the question whether it would not in some cases be more economical to increase the staff. It is of course often convenient and perhaps necessary to work a driver for some hours beyond his normal day's work, but the system of regularly over-

Appendix A to Question No. 14-B—contd.

working a man seems in some cases to have been carried beyond fair limits, and perhaps an automatic check might be instituted by arranging the scale in such a manner that it will not be greatly to a driver's advantage to work beyond a certain limit of overtime. I mean by this that instead of increasing the rate in proportion to the overtime it might be advisable to introduce a differential scales. It will be seen from the above table that the allowances on the Madras railway are kept within more reasonable limits than on other lines: it may be that the same economy elsewhere is feasible, and it is with this view that I have recorded this note.

10. The suggestions conveyed in this note are of course subject to the proviso that *nothing is done to affect the wages or allowances of men already in the service*. Any action found possible would affect only the men enlisted after the new conditions of service were published and agreed to by the new employé.

Appendix A to Question No. 14-B—contd.
SCHEDULE C.

Statement showing pay drawn by the Uncovenanted Drivers (Europeans and Eurasians).

Year of service.	SLACK SEASON.								BUSY SEASON.							
	E. B. S. Ry.	N. W. Ry.	B., B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	Average of all Rys.	E. B. S. Ry.	N. W. Ry.	B., B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	Average of all Rys.
1st year.	Maximum ...	120	180	162	150	50	...	136	133	130	200	182	200	70	...	160
	Minimum ...	120	110	91	48	50	...	23	74	120	108	91	50	50	...	59
	Average ...	120	147	119	96	50	...	66	100	123	164	126	102	60	...	89
2nd year.	Maximum ...	120	250	182	130	120	...	68	145	120	250	156	130	120	...	100
	Minimum ...	120	85	104	110	100	...	59	96	120	70	104	89	80	...	73
	Average ...	120	140	143	119	110	...	63	116	120	133	130	117	100	...	84
3rd year.	Maximum ...	130	250	208	140	...	...	128	171	130	250	208	140	45	...	160
	Minimum ...	130	110	104	90	...	...	46	96	130	110	104	90	45	...	100
	Average ...	130	142	169	119	...	...	93	131	130	143	156	120	45	...	130
4th year.	Maximum ...	180	250	208	150	35	...	160	164	180	250	208	150	35	...	160
	Minimum ...	120	110	104	120	25	...	36	86	120	110	104	120	25	...	64
	Average ...	150	156	156	136	30	...	81	118	145	158	156	136	30	...	105
5th year.	Maximum ...	200	230	208	160	125	...	172	183	200	153	182	160	125	...	150
	Minimum ...	140	120	65	100	40	...	65	88	130	120	130	100	40	...	72
	Average ...	180	163	156	125	72	...	104	133	172	133	163	127	72	...	121
6th year.	Maximum ...	160	230	181	170	65	...	200	168	160	230	182	170	70	...	200
	Minimum ...	120	110	122	120	30	...	34	99	120	110	182	120	40	...	45
	Average ...	133	165	182	148	48	...	84	127	130	164	182	148	55	...	117
7th year.	Maximum ...	200	200	108	181	90	...	185	161	200	200	126	180	100	...	200
	Minimum ...	120	160	104	110	55	...	48	99	130	110	104	110	60	...	90
	Average ...	172	177	105	157	67	...	123	134	178	169	111	154	75	...	148
8-10th year.	Maximum ...	200	250	208	200	155	100	200	188	200	250	208	200	160	104	200
	Minimum ...	140	120	104	50	20	80	33	79	140	110	104	50	20	91	80
	Average ...	169	180	161	186	66	67	122	136	173	182	158	185	67	95	159
11-15th year.	Maximum ...	200	250	203	200	170	100	200	197	200	250	208	200	170	156	200
	Minimum ...	180	140	104	170	75	100	63	120	180	140	104	50	75	88	150
	Average ...	196	199	146	197	121	124	153	162	196	193	151	193	121	127	179
16-20th year.	Maximum ...	200	200	208	200	50	175	200	173	200	200	208	200	50	182	200
	Minimum ...	200	200	130	200	30	125	54	134	200	200	130	200	30	150	129
	Average ...	200	200	178	200	30	151	146	158	200	200	182	200	30	156	184
21-25th year.	Maximum ...	...	200	208	...	...	175	200	156	...	200	208	...	...	182	200
	Minimum ...	...	200	208	...	...	100	137	161	...	200	208	...	...	104	200
	Average ...	...	200	208	...	...	152	177	184	...	200	203	...	...	160	200
26-30th year.	Maximum ...	...	...	...	...	...	175	190	182	...	...	...	...	...	182	190
	Minimum ...	...	...	...	...	...	175	190	182	...	...	...	...	...	182	190
	Average ...	...	...	...	...	...	175	190	182	...	...	...	...	...	182	190

Appendix A to Question No. 14-B—contd.
SCHEDULE D.

Statement showing allowances drawn by the Uncovenanted Drivers (Europeans and Eurasians).

Year of service.	SLACK SEASON.								BUSY SEASON.							
	E. B. S. Ry.	N. W. Ry.	B., B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	Average of all Rys.	E. B. S. Ry.	N. W. Ry.	B., B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	Average of all Rys.
1st year.	Maximum ...	103	168	129	83	22	...	60	94	92	145	170	202	33	...	234
	Minimum ...	103	35	8	3	21	...	27	33	74	38	40	43	23	...	25
	Average ...	103	91	58	42	21	...	44	63	86	115	95	92	29	...	83
2nd year.	Maximum ...	77	207	99	89	64	...	62	100	114	223	139	154	79	...	160
	Minimum ...	51	22	40	23	21	...	31	31	74	40	76	48	28	...	51
	Average ...	64	78	70	56	43	...	45	59	92	107	113	104	53	...	119
3rd year.	Maximum ...	73	230	146	123	...	...	97	134	111	157	200	160	32	...	258
	Minimum ...	6	9	59	28	...	...	30	26	56	26	73	76	32	...	76
	Average ...	40	82	94	71	...	...	56	62	83	85	132	120	32	...	146
4th year.	Maximum ...	95	103	139	146	30	...	82	99	107	160	199	167	43	...	317
	Minimum ...	50	14	26	63	23	...	15	32	55	43	81	71	29	...	31
	Average ...	75	71	80	88	26	...	46	64	87	103	129	116	36	...	118
5th year.	Maximum ...	121	105	120	105	35	...	128	104	142	123	204	165	55	...	284
	Minimum ...	63	76	13	47	20	...	11	28	56	110	109	73	17	...	43
	Average ...	84	92	76	70	28	...	56	63	102	116	171	127	38	...	99
6th year.	Maximum ...	70	125	66	102	51	...	116	88	138	183	176	177	43	...	340
	Minimum ...	47	26	66	53	31	...	9	39	58	43	176	90	37	...	19
	Average ...	61	73	66	76	41	...	45	60	95	115	176	146	42	...	146
7th year.	Maximum ...	100	137	38	149	71	...	135	105	129	122	124	167	53	...	409
	Minimum ...	65	53	34	31	39	...	16	40	74	92	85	72	37	...	77
	Average ...	84	83	56	88	54	...	65	68	99	103	139	145	45	...	202
8-10th year.	Maximum ...	105	219	107	146	79	33	160	121	126	36	199	224	100	83	505
	Minimum ...	15	19	32	17	8	...	13	17	40	29	85	18	9	18	52
	Average ...	74	102	73	107	47	22	70	71	94	112	130	163	44	36	187
11-15th year.	Maximum ...	104	263	111	173	95	71	200	145	165	272	173	210	94	90	430
	Minimum ...	80	32	34	62	21	14	33	40	110	56	76	82	8	12	51
	Average ...	95	106	77	131	69	46	112	91	122	120	135	161	61	46	207
16-20th year.	Maximum ...	120	154	151	152	17	105	227	132	131	163	200	175	3	98	402
	Minimum ...	19	79	95	152	17	9	54	61	70	80	114	175	3	14	48
	Average ...	81	125	112	152	17	52	124	95	99	133	164	175	3	50	226
21-25th year.	Maximum ...	...	105	136	...	...	73	159	118	...	104	167	...	...	84	355
	Minimum ...	...	105	136	...	...	21	59	80	...	104	167	...	...	36	92
	Average ...	...	105	136	...	...	46	119	101	...	104	167	...	...	58	103
26-30th year.	Maximum ...	...	...	...	...	...	61	62	61	...	...	...	...	...	6	164
	Minimum ...	...	...	...	...	...	28	62	45	...	...	...	...	...	35	164
	Average ...	...	...	...	...	...	44	62	53	...	...	...	...	...	48	154

Appendix A to Question No. 14-B—contd.
SCHEDULE E.
Statement showing pay drawn by the Native Drivers.

Year of service.	SLACK SEASON.							BUSY SEASON.							Average of all Rs.
	E. B. S. Ry.	N. W. Ry.	B. B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	E. B. S. Ry.	N. W. Ry.	B. B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	
1st year.															
Maximum ...	...	120	104	92	...	...	77	98	...	120	104	92	...	80	90
Minimum ...	...	75	104	20	...	...	77	69	...	85	104	14	...	80	71
Average ...	...	101	104	46	...	...	77	82	...	105	104	37	...	80	81
2nd year.															
Maximum ...	...	...	104	21	...	...	...	62	...	...	104	20	...	...	62
Minimum ...	...	...	104	17	...	...	...	61	...	...	104	17	...	...	60
Average ...	...	...	104	19	...	...	...	61	...	...	104	18	...	...	61
3rd year.															
Maximum ...	...	28	130	104	92	...	...	89	23	133	104	92	25	...	76
Minimum ...	...	20	106	104	29	...	...	65	22	110	104	31	25	...	58
Average ...	...	24	118	104	60	...	...	76	22	122	104	61	25	...	67
4th year.															
Maximum ...	...	22	...	104	24	...	17	90	51	22	...	24	...	26	63
Minimum ...	...	22	...	104	21	...	17	36	22	...	104	20	...	26	62
Average ...	...	22	...	101	23	...	17	45	22	...	104	22	...	26	62
5th year.															
Maximum ...	...	35	...	104	18	...	...	110	67	36	...	104	18	...	52
Minimum ...	...	20	...	45	18	...	...	27	27	20	...	78	18	...	64
Average ...	...	26	...	76	18	...	...	59	45	25	...	78	18	...	42
6th year.															
Maximum ...	...	26	123	104	190	...	25	120	98	26	130	91	190	...	56
Minimum ...	...	22	123	104	19	...	25	52	24	130	91	20	...	27	98
Average ...	...	24	123	104	96	...	25	73	25	130	91	20	...	27	61
7th year.															
Maximum ...	...	22	160	...	80	...	38	120	24	22	160	...	80	...	77
Minimum ...	...	20	160	...	80	...	19	26	61	20	160	...	80	...	83
Average ...	...	21	160	...	80	...	28	73	72	21	160	...	80	...	69
8-10th year.															
Maximum ...	...	36	...	104	180	35	31	135	87	36	...	104	180	35	77
Minimum ...	...	20	...	104	20	20	3	30	38	22	...	104	21	20	88
Average ...	...	25	...	104	74	21	31	85	18	25	...	104	27	20	46
11-15th year.															
Maximum ...	...	40	190	130	200	30	31	143	100	40	183	130	200	30	65
Minimum ...	...	20	190	104	17	23	25	71	64	40	180	104	23	20	108
Average ...	...	31	190	117	39	25	28	112	77	31	180	117	40	25	66
16-20th year.															
Maximum ...	...	40	...	120	...	35	...	140	85	40	...	130	...	35	79
Minimum ...	...	32	...	78	...	28	...	106	61	32	...	78	...	28	66
Average ...	...	36	...	108	...	31	...	122	74	36	...	108	...	31	67
21-25th year.															
Maximum ...	...	...	...	...	...	34	200	113	...	...	...	...	...	45	78
Minimum ...	...	...	...	...	...	9	77	33	...	...	...	...	...	26	116
Average ...	...	...	...	...	...	33	139	77	...	...	...	...	...	36	46
26-30th year.															
Maximum ...	...	...	...	...	...	50	200	125	...	...	...	...	...	56	81
Minimum ...	...	...	...	...	...	31	200	115	...	...	...	...	...	52	126
Average ...	...	...	...	...	...	41	200	121	...	...	...	...	...	42	116

Appendix A to Question No. 14-B—contd.
SCHEDULE F.

Statement showing allowances drawn by the Native Drivers.

Year of service.	SLACK SEASON.							BUSY SEASON.							Average of all Rs.
	E. B. S. Ry.	N. W. Ry.	B. B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	E. B. S. Ry.	N. W. Ry.	B. B. & C. I. Ry.	R. M. Ry.	S. I. Ry.	Madras Ry.	G. I. P. Ry.	
1st year.															
Maximum ...	...	52	17	37	...	...	43	37	...	125	22	97	...	...	95
Minimum ...	...	28	17	17	...	...	43	26	...	10	27	4	...	...	43
Average ...	...	40	17	27	...	...	43	32	...	57	22	33	...	...	62
2nd year.															
Maximum ...	...	...	33	16	...	...	...	24	...	...	38	16	...	...	27
Minimum ...	...	...	33	1	...	...	...	17	...	...	38	2	...	...	20
Average ...	...	...	33	8	...	...	...	21	...	...	38	9	...	...	33
3rd year.															
Maximum ...	...	7	86	32	28	...	...	38	6	128	71	92	28	...	64
Minimum ...	...	4	85	32	23	...	...	36	1	103	71	34	22	...	46
Average ...	...	6	85	32	25	...	...	37	3	115	71	63	23	...	55
4th year.															
Maximum ...	...	1	...	73	19	...	5	36	3	...	120	23	...	...	95
Minimum ...	...	1	...	56	12	...	5	16	3	...	84	14	...	...	29
Average ...	...	1	...	64	15	...	5	24	3	...	101	20	...	...	51
5th year.															
Maximum ...	...	10	...	69	10	...	...	50	34	11	...	98	7	...	88
Minimum ...	...	3	...	3	10	...	...	17	8	...	38	7	...	...	18
Average ...	...	6	...	34	10	...	...	35	2	6	...	75	7	...	44
6th year.															
Maximum ...	...	9	39	62	71	...	9	119	51	8	64	118	152	...	16
Minimum ...	...	1	31	62	18	...	9	3	22	1	61	118	20	...	40
Average ...	...	5	39	62	45	...	9	37	33	4	64	118	82	...	59
7th year.															
Maximum ...	...	6	108	...	37	...	14	69	47	7	194	...	88	...	106
Minimum ...	...	6	108	...	37	...	9	3	33	7	194	...	88	...	65
Average ...	...	6	108	...	37	...	11	37	40	7	194	...	81	...	103
8-10th year.															
Maximum ...	...	12	...	70	123	22	18	63	52	9	...	115	201	22	103
Minimum ...	...	2	...	49	1	5	18	6	13	1	...	98	14	6	24
Average ...	...	5	...	60	47	13	18	41	31	4	...	114	77	14	59
11-15th year.															
Maximum ...	...	13	68	52	131	19	13	171	67	8	234	106	109	20	128
Minimum ...	...	1	61	31	5	6	11	30	22	1	234	126	9	6	58
Average ...	...	7	68	42	21	10	12	7	33	6	234	161	29	12	84
16-20th year.															
Maximum ...	...	10	...	86	...	23	...	83	52	9	...	135	...	10	98
Minimum ...	...	5	...	24	...	12	...	80	30	4	...	48	...	6	26
Average ...	...	7	...	60	...	16	...	81	41	6	...	101	...	8	66
21-25th year.															
Maximum ...	...	...	...	67	...	...	11	127	63	...	...	...	...	15	81
Minimum ...	...	...	...	67	...	...	2	25	31	...	...	7	...	...	29
Average ...	...	...	...	67	...	...	7	76	50	...	...	43	...	...	50
26-30th year.															
Maximum ...	...	...	...	...	...	...	31	153	92	...	...	...	...	43	71
Minimum ...	...	...	...	...	...	...	26	153	90	...	...	...	...	23	118
Average ...	...	...	...	...	...	...	29	153	90	...	...	...	...	34	118

Appendix A to Question No. 14-B—contd.

SCHEDULE G.

Scale of Salaries of Engine Drivers on Guaranteed Railways.

Railway.	Designation.	Salaries.	Remarks.
G. I. P.	Drivers made from Covenanted Firemen	120—200	
"	Drivers from European Firemen engaged in India	90—200	
"	Drivers from Parsi and Portuguese Firemen	80—140	
B., B. and C. I....	European Drivers	105—240	
"	Native "	105—150	
B. N. R.	European "	100—210	
"	Native "	20—40	
S. M. R.	No. 1 Scale	105—210	
"	" 2 "	75—120	
"	" 3 "	35—75	
I. M. R.	Drivers	101—200	Natives not mentioned.
E. I. R.	Europeans	140—220	
"	Natives	21—30	

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Appendix A to Question No 14-B.—contd.

Abstract of replies to demi-official references, dated the 23rd July 1890 and the 15th August 1890, asking for opinions on the note by Lieutenant-Colonel Conway-Gordon, R. E.

Railway.	Abstract of replies.
Jodhpore	Approves of Colonel Conway-Gordon's idea of three classes, and is in favour of low rates of pay with liberal overtime, as in the slack season it enables drivers to be kept on cheaply, their pay forming a sort of retaining fee; and remarks that the wholesale dismissal of men that takes place every slack season is both hard on them and bad policy for the railways, who have to take on whom they can get when work recommences.
Bengal and North Western and Rohilkund and Kumaon.	Considers that the subject should be brought forward at the next conference, and makes certain remarks, <i>vide</i> extract from letter printed on page xiii <i>infra</i> .
Bhavnagar-Gondal-Junagarh-Porbandor.	Considers that railway administrations should carefully frame their rates of pay according to the market rate at which they can obtain properly skilled labour and that the discussion of such matters between railways is desirable, and also, to a certain extent, uniformity of action. Communicates further remarks on the possible result of the whole of the railway staff passing into the hands of natives, and forwards a letter from the Officiating Locomotive Superintendent showing that the drivers in India are better off than those in England, <i>vide</i> letter and enclosure printed on pages xiv to xvi <i>infra</i> .
Morvi	Manager and Executive Engineer is not in favour of the subject being pursued with a view to discussion at the next railway conference.
East Indian	Agent is in favour of the proposal to bring the question forward at the next railway conference.
Dibru Sadiya	Agent and General Manager is in favour of the proposal to bring the question forward at the next railway Conference.
Nizam's	Agent forwards copy of a letter from the Locomotive Superintendent, advocating the employment of Parsis and natives of India as driving staff, <i>vide</i> letter and enclosure printed on pages xvi to xix <i>infra</i> .
Wardha Coal	Manager thinks it would be an advantage if the question of pay and allowances of drivers were discussed and some uniform scale arrived at.
Madras	Acting Agent and Manager is of opinion that more data will be required before any comparison between the pay and allowances on different lines can be made, and does not think uniformity on all lines is desirable or possible.
Bengal-Nagpur	Agent and Chief Engineer is in favour of the matter being discussed at the next railway conference.
Nalhati	Agrees with suggestion made, but does not think it possible to effect a reduction in the case of native drivers if Parsis are removed from the category.
Southern Mahratta	Agent forwards a note by the Locomotive Superintendent, criticising Lieutenant-Colonel Conway-Gordon's note and making certain general remarks as to the advisability of adopting the suggested system and the manner in which it should be carried out, <i>vide</i> letter and enclosure printed on page xx <i>infra</i> .

Appendix A to Question No. 14-B—contd.

Abstract of replies to demi-official references, dated the 23rd July 1890 and the 15th August 1890, asking for opinions on the note by the Lieutenant-Colonel Conway-Gordon, R. E.—contd.

Railways.	Abstract of replies.
Bombay, Baroda and Central India	Agent forwards note from the Locomotive Superintendents, Bombay, Baroda and Central India and Rajputana-Malwa railways, and thinks the discussion of the subject at the next conference would do good if the locomotive departments were represented. The Locomotive Superintendent, Bombay, Baroda and Central India forwards scales of pay which have been adopted with the purpose of encouraging a class of Europeans and Eurasians born in India, <i>vide</i> letter and enclosures printed on pages xxi to xxiii <i>infra</i> .
Great Indian Peninsula	Agent forwards a note by the Locomotive Superintendent, and states that his present rules were settled after protracted discussion, and that he would prefer to leave the matter undisturbed and not bring it forward at the next conference, as it will be some years before the rules recently introduced will have full effect. The Locomotive Superintendent further observes that there ought to be uniformity as regards the broad principles on which the drivers are paid, the payment being based on the value of the work done. Considers also that the time has passed when drivers need be brought out from England, and makes certain remarks <i>re</i> overtime, <i>vide</i> letter and enclosure printed on pages xxiii and xxiv <i>infra</i> .
North Western	Both Manager and Locomotive Superintendent think the matter might advantageously be brought forward at the next general committee of Locomotive Superintendents, but do not consider that the discussion of the subject at the general railway conference would be expedient. The Locomotive Superintendent, agrees with the views advanced, considers that adding special allowances to the substantive pay is misleading; that the inclusion of Parsis with natives, has tended to run up the pay for natives, and makes certain further remarks, <i>vide</i> letter and enclosure printed on pages xxiv and xxv <i>infra</i> .
Bengal Central	Agent and Chief Engineer is of opinion that the principle of reducing the pay and allowance of engine drivers upon which the safety of the travelling public largely depends is bad.
Eastern Bengal	Manager has no objection to the matter being discussed at the next railway conference provided that the conditions laid down in para. 10 of the note are strictly observed; and observes that although there may be a good deal to be said in favour of a higher rate of emoluments for men sent out from England, it would not tend to good or economical working if a really efficient man engaged in the country were barred from the highest salary open to his class.
Jorhat	Manager is in favour of the subject being brought forward at the next railway conference.
Burma	Manager and Engineer-in-Chief forwards copy of a note from the Locomotive Superintendent on the subject, and considers that no good purpose would be served by referring such a subject to the railway conference, <i>vide</i> letter and enclosure printed on pages xxv to xxviii <i>infra</i> .
South Indian	Agent is of opinion that the matter should first be referred to the committee of Locomotive Superintendents, and the results submitted to the next railway conference.

Appendix A to Question No. 14 B.—contd.

Abstract of replies to demi-official references, dated the 23rd July 1890 and the 15th August 1890, asking for opinions on the note by Lieutenant-Colonel Conway-Gordon, R. E.—concl'd.

Railway.	Abstract of replies.
Oudh and Rohilkhand	Manager considers the question difficult to deal with, and that it is not possible to fix uniform rates. Advocates the system in force on the Oudh and Rohilkhand railway by which driver's pay varies more directly with the work done than under the Government system; but states that the subsistence allowance, which is the fundamental principle of the system cannot be fixed universally, or even general limits indicated which can apply to all India. Locomotive Superintendent thinks the subject might be discussed with a view to introduce one system of payment throughout India; considers the state railway system unsatisfactory, and urges introduction of a mileage system; considers a retaining fee or subsistence allowance should be drawn when not working a train; and observes that the advantages of the mileage system are that as the traffic increases or decreases so will the expenditure without having, in the latter case, to dismiss men; and thinks that it is not necessary to lay down any hard and fast rules for men engaged in England or India, <i>vide</i> letter and enclosure printed on pages xxviii and xxix <i>infra</i> .
Indian Midland	Agent considers it advisable to pursue the subject and subsequently to discuss it at a next conference and entirely concurs in the view of Mr. Brock, Locomotive Superintendent, as given in his letter accompanying, <i>vide</i> letter and enclosure printed on pages xxx and xxxi <i>infra</i> .

Demi-official, dated 22nd August 1890.

From—The Agent, Bengal and North Western, and Rohilkund and Kumaon railways,

To—The Director General of Railways.

I am in receipt of your demi-official letter No. 660-E., dated 15th August 1890, regarding the salary of European and Eurasian engine drivers.

I am of opinion that the subject ought to be pursued and brought forward at the next railway conference.

A great many of the men now employed on railways are European born and brought up in this country and Eurasians, and these men have been hitherto drawing the same pay and allowances as Europeans born and brought up in Europe.

Considering that the former class of men were being paid too highly for the class of work to be done, and that if such a state of things continued there would be a tendency to discontinue their employment and to gradually enlist only natives—a state of affairs which ought in my opinion also to be avoided—I recently introduced the following grades for European and Eurasian drivers, shunters, and firemen on this railway:—

	Rs.	Rs.
Driver, class A—salary from	... 110 to	200 per month.
Driver, class B	... 50 to	100 " "
Shunters	... 35 to	45 " "
Firemen	... 24 to	30 " "

Domiciled Europeans and Eurasians will begin as firemen on Rs. 24 per month, and will work up to engine driver on Rs. 50 per month rising by yearly increments of Rs. 5 for good service to Rs. 100.

Only superior men after long and approved service will be promoted to class A.

The rates of pay here proposed are much the same as those paid for the same class of labour in Brittain.

Appendix A to Question No. 14-B.—contd.

Extract from demi-official dated August 1890.

From—The Manager and Engineer-in-Chief, Bhavnagar-Gondal-Junagarh-Porbandar railway,

To—The Director General of Railways.

In reply to your demi-official of the 15th August, I beg to make the following remarks.

1. I think it is contrary to the sentiment that is apparently spreading both in England and India to maintain different scales of pay for covenanted, uncovenanted, and native Locomotive employés. The opinion is rapidly gaining ground that the one thing that is to rule is a man's worth, and that whether he be covenanted, uncovenanted, or native, that his pay and position is to be governed by his worth. Under such circumstances, all it seems to me possible to do is for railway administrations to carefully frame their rate of pay for the different grades of employés—Foremen, drivers, shunters, firemen, &c.—according to the market rate at which they can obtain properly skilled labour of the kind they want, and to pay the rate so arrived at to a man of any class or colour that is up to the standard of the wage fixed. Naturally, it will not be possible to get every one up to the same dead level of goodness, and a graduated descending scale will arrange itself.

4. I should raise no objection, nor am I sure would the committee of management do so either, to any Parsi or Native being paid equally with the European, provided that he was not getting above the proper market value of his services.

5. Up to the present time neither Parsis nor Natives of any high market value have come forward here. A really efficient driver, in addition to the bare knowledge of working an engine, requires to be a man of some intelligence and education, taking a pride in his work, with a knowledge of the mechanical construction of the engine, able to treat mishaps that may occur to it, ready of resources in case of an accident, and coupled with the foregoing he requires to be a man sound in mind and body, and of good physique. Few natives up to such a standard have yet offered for the work. Prejudices against the class of work have, I understand, existed, but these no doubt time will break down.

6. It is possible that the result of the system of engaging staff foreshadowed in paragraph (1) would be in time (if no special means are taken to avert it) to eliminate the class of the present covenanted driver, and to throw the whole employment into the hands of trained Natives, and Europeans and Eurasians either country born or who have come to the country in search of work and who, once the employment is a matter depending entirely on their own exertions, will have to put their shoulder to the wheel if they mean to hold their own, and contest the relative value of their services with that of the natives of the soil.

7. Such a possible result as almost the whole of the working staff of our railways passing into the hands of the natives is a subject the vast importance of which will no doubt have to be weighed from an Imperial point of view. Writing as a Railway Manager, this issue appears to be beside the matter we have been asked to consider; but I may venture to suggest that it could be guarded against by Government, acting in the Imperial interests, laying down a fixed proportion of the European element that was to be maintained, applying the rule at first to state railways, and securing provision for the same in all future contracts for new lines other than state. Such men, if recruited from home, as it would be desirable that they should be, could, as suggested by the Director General, receive a colonial allowance in addition to the ordinary Indian rate of pay. As they would be bound to a fixed length of service, and might be in addition bound to keep themselves efficient volunteers, and be liable to service anywhere in India or beyond the frontier that they might be required to go, such an additional allowance would only be in reason.

Appendix A to Question No. 14-B.—contd.

8. As regards allowances, there seems little doubt that there is very considerable room for improvement on the present system as generally adopted on Indian railways. The figures supplied by the Director General of railways satisfactorily prove that much.

9. In 1887 the unsatisfactory nature of the overtime rules was the subject of considerable discussion with the Locomotive Superintendent; the rules then in force were based strictly on the Government state railway rules. The main objection raised to them was that under the rules a man might be idle half the month and still earn heavy overtime allowance. A man inclined to shirk could sit in his house half the month, shamming sick it may be, or really sick through his own fault, and then come out when there was a bit of a rush and clear a lot of money. In 1888 this was altered, and a new set of rules introduced from the 1st of January of that year, existing interests being protected by the original rules remaining in force for old hands.

10. The main feature of these new rules is that an average of eight hours' work a day for every working day of the month is demanded from all classes before overtime allowances, over his regular salary, can be claimed. Every hour's work a man does is credited to him, and he begins to count overtime when he has made up 208 hours in the month, that is 8 hours' work a day for 26 days. There is now no object in shirking work at slack times, and men are always anxious to make up their 208 hours as soon as possible. A man off work knows he has to make good the time he owes for his salary before he can begin to pile up allowances.

11. I am aware that objections can be raised to the system, but so there can to almost any. It has now worked for two and a half years with a satisfactory effect on the allowances, and without producing any serious difficulty with the men. Of course all new men sign for these rules when they accept service. I attach a copy of the rules for your information.

12. A good steady man under the revised rules can make as much as ever he did, and has fairly earned it. It is the shirker that liked to do a heavy piece of work and then knock off for a time that suffers.

13. Another and important effect of the rules is that in slack times, when the men have a very easy life of it, and the railway if it does not reduce them has to pay heavily for retaining their services, the extra hours' work that a man has occasionally to put in, say perhaps one day, out of three he has to do for the railway without extra pay in return for his salary on the light days. This going on until he has earned his salary by putting in his 208 hours' work in the month.

14. I attach a copy of a demi-official from the Acting Locomotive Superintendent of this railway. The Locomotive Superintendent is at present on leave in England. Mr. D. Wedderburn has just come out with practical experience on the Caledonian railway, and his opinion as to the relative positions and allowances of drivers at home and in India is certainly not without value.

15. I consider that there can be no doubt that the discussion of these matters between railway administrations is very desirable, and that to a certain extent a uniformity of action is desirable; at the same time any appearance of combination against a particular class of servants would be very much to be deprecated, and the individual freedom of action of the different administrations would have to be maintained.

Extract from letter dated 23rd August 1890.

From—The Officiating Locomotive Superintendent, Bhavnagar-Gondal-Junagarh-Porbandar railway,

To—The Manager and Engineer-in-Chief, Bhavnagar-Gondal-Junagarh-Porbandar railway.

That drivers in India are in receipt of very high wages there is no doubt, but I think that economy is not so much needed in connection with their rates of

Appendix A to Question No. 14-B.—contd.

pay, as with their various allowances, which on some lines amount to a very large sum.

A shunting driver in India is paid at a rate similar to what a man in the same grade in England is, but with this difference, he has to work eight hours each day instead of twelve: if the home driver by working overtime earns his fortnight's pay before the completion of said fortnight, he is liable to get a compulsory holiday, or perhaps two, to bring his pay down to, or within, what he is rated at.

As regards promotion, while a man in India can look forward to steady advancement, provided his general conduct is good, a driver in England may have to serve for upwards of twenty years before he gets the maximum rate of pay, and he may moreover be kept in the background through the prejudice of an unprincipled foreman.

Premia, or allowances, are very much more in vogue in India than at home, and are allowed to mount up to sums very much in excess of what would be permitted there, owing to the very high price of coal on most of the Indian railways. I consider the premium admissible, but think that the oil allowance might, with advantage, be discontinued altogether, as the men either obtain supplies from sources other than legitimate ones, or, failing that, the engines are made to suffer.

Privilege leave and sick leave are not familiar terms in England, the men as a rule seldom get off for a holiday, except in the instance I have already mentioned, and when they do, they receive no pay. This also applies to men who through sickness are unfit for duty.

As regards the "trip" or "contract" system, I think it might, with advantage to the railways, be discontinued altogether; in England it is not popular amongst the men, as, owing to the blocked state of the lines near busy centres, trains are often delayed for 4 or 5 hours before space can be found in the goods and mineral yards for the reception of traffic: the men in charge of these trains are thus frequently kept on duty for a very long time, but only receive their pay for the trip, or trips, run.

Lastly, drivers in India are not subjected to the same strain, mental and physical, as our drivers at home are: the speeds in this country are not so high, and large junctions not so common, as in England.

To sum up, I consider the driver in India is on the whole much better off than he would be in England in point of salary, promotion, premia, privilege and sick leave, and hours of labour. Unless it is desired to entirely dispense with European drivers in India, I do not consider that the present rate of pay for this class of men should be reduced, but am of opinion that the system of dealing out allowances to this, and all other class of drivers might with advantage be greatly modified.

Stringent regulations limiting the amount of overtime a man may work, taken in conjunction with the reduction of allowances, would render it impossible for any locomotive employé to treble or even double his nominal salary, as it would appear from the note by the Director-General of Railways some of the men on the Great Indian Peninsula railway are permitted to do.

Dated 9th September 1890.

From—The Acting Agent, His Highness the Nizam's Guaranteed state railway,
To—The Director General of Railways.

In reply to your demi-official letter No. 660-E. of the 15th August 1890, enclosing a confidential note on the question of the pay and allowances of engine drivers on Indian railways, I beg to enclose a letter to me from the Locomotive Superintendent of this railway, to whom I referred the question. You will see that he is of opinion that the subject should be discussed with a view to the rates of pay and allowance of drivers being put on a more satisfactory basis, and I entirely agree with him in his remarks.

Appendix A to Question No. 14-B.—contd.

Dated 30th August 1890.

From—The Locomotive Superintendent, Nizam's Guaranteed state railway,
To—The Agent and Manager, His Highness the Nizam's Guaranteed state railway.

The rate and scale of wages to driving staff is important and of great interest to any single railway company, and proportionately more so when treating it as universal to all Indian railways, and I am glad of this opportunity to give some notes on the subject, as the effect of progress of railways with its increased demand on this labor has not had the consideration it merits.

2. In the early age of Indian railways it was necessary to introduce skilled driving labor into India from England under covenants on a then fair remuneration, and these were allowed a native servant under the designation of fireman. The driving staff of one locomotive engine consisted of one European driver, one European fireman, one or two native agwallas (servants). The respective starting rate of wages, on an average rate, being Rs. 220, 80, and 20, total Rs. 320.

3. At the present day the staff is paid at reduced rates of wages owing to the pressure brought to bear by the management on the question of economical railway working, but the standard of training, efficiency, and skill of the staff has been sacrificed under the following action.

4. The European staff has been recruited from the spoils of men discharged from steam and other vessels, the army, and from country-born Europeans who have received a smattering of some trade from a mechanic to a poulitice-maker. Such men have been put into training direct on the foot-plate, where a large number of them pay "Jack" the agwalla, who has developed into a good fireman with 10 to 15 years' good hard training, to teach them and to do their work, consequently when they are passed out as drivers after three to five years' service they know only sufficient to run a train to signals with an engine in good working order, but know nothing of economical or efficient engine working.

5. The average rates of wages paid to these men are as follows:—

Fireman, Rs. 60 to maximum Rs. 70.
Driver „ 100 to „ 200.

6. Others are taken on at earlier ages and receive a light training in the running shed and fitting shops, and are then put out on the foot-plate, following the usual training for drivers, as shown in the first example, but the results are a little better, due to the mechanical knowledge gained. These men receive wages under the following rates:—

Fireman, Rs. 40 to 70 maximum.
Driver „ 100 to 200 „

7. The next class of staff employed are Parsis and Eurasians, who are put through the same training as above mentioned with the advantages of, in the case of Parsis, being of the country, steadiness, which enables them to acquire a more individual knowledge of the ordinary working of a locomotive engine, and a good percentage of them may be considered as being fair drivers. The East Indians have at starting the same advantages as the Parsis in being acclimatized, but this is more than lost by the indifference they show to their duties owing to their interest being absorbed in attempting to follow or copy the better paid European servant in all his customs of living, and in endeavouring to overcome the disadvantages of his birth he generally falls.

Average rates of wages paid to the above are:—

Fireman, Rs. 30 to 50 maximum.
Driver „ 80 to 150 „

8. The last is the native staff hindoos of lower caste and mahomedans. This is the staff which does the principal work on a locomotive; they are generally engaged when young from locomotive staff, and have as a rule obtained a good grounding in the use of mechanical tools and in the fitting of the several working parts of a locomotive engine, having picked up the knowledge from the shops during the period of their working as apprentices or in the running shed from cleaners. A large number of natives now working as agwallas have had

Appendix A to Question No. 14-B.—contd.

a long service and a good training resultant on their having to do their own work as well as that of their more fortunate, but less experienced superiors, drivers and firemen, and they are qualified to be in charge of an engine so far as its working is concerned. Greatly to their credit, they have advanced themselves to the present important position they hold in the driving staff, especially when the disadvantage of want of education in the English language and the temptations they are beset with to take to drinking are considered.

The average rates of wages paid to these men are :—

Fireman, rate Rs. 14 to 20 maximum.
Driver " " 25 to 60 "

9. The position of driving staff rates of wages at the present time may be taken to stand as follows :—

1. *European, Covenanted.*—The rates offered are too low to induce a good class of trained men to leave their services in England, and too high for the class of men who do accept engagements for India, also too high in comparison to the pay given to Europeans trained in India.

2. *Europeans, Indian trained.*—The average rate is too high, when taking into consideration the average qualifications and efficiency of these men, under comparison with Eurasians, Parsis, and Natives.

3. *Eurasian and Parsis.*—The rates are too high considering their qualifications and cost of living as compared with Natives.

4. *Natives.*—The rates of wages paid are a fair equivalent for duties performed and cost of living of the class of people engaged.

10. Another point must not be lost sight of, and that is the actual cost of each driver and fireman when the percentage of dismissals of others trained for driving staff, but found wanting, has been taken into account with its consequent expenses; also the numbers of drivers and firemen engaged and dismissed. The following table shows a fair average ratio of engagements and dismissals made in the several classes of men entertained in and for the driving staff, during a unit period :—

Classes.	Engagements.	Dismissals.
Europeans engaged in England ...	5	1
" trained in India ...		3
Eurasians " " ...		4
Parsis " " ...		2
Natives " " ...		1½
European, Eurasian drivers re-engaged from other railways	5	5
Parsis " " " " ...		2
Natives " " " " ...		1½

From the above we find that it is more economical to engage men under covenant from England and to engage Parsis and Natives for driving staff.

11. The reason of the present very undesirable state of the driving staff is owing to the want of due attention to the proper training of the staff to meet calls for economy, and the rising demand on this labor has necessitated the appointment of men to drivers before they were ready or thoroughly trained for the post, and the engagement of Europeans and others of a low standard of discipline who wander all over the country seeking railway employment after having been discharged from occupations, and who have no kind of qualifications to recommend them for railway mechanical work but their nationality which has given them the preference on engagements under the supposition that they are better able to train and qualify more quickly than others of the country.

12. In my opinion the remedy rests in the system and period of training the labour of the country and rules universal to all Indian railways on the form I here below mention.

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System.

1. That locomotive engine staff be engaged and trained under two classes with the following rates of wages :—

Scale.	Nationality.	Designation.	RATE OF WAGES.	
			From Rs.	To Rs.
No. 1...	European, Eurasian, Parsis ...	Drivers ...	70	150
	Do. do. do. ...	Firemen ...	20	40
No. 2...	Natives ...	Drivers ...	20	60
	Do. ...	Firemen ...	12	18

With overtime minimum, 30 per cent. of wages paid.

" " maximum, 70 " " "

The above rates give an average of Rs. 75, and Rs. 22.5 to drivers and firemen respectively, with an average overtime allowance of Rs. 50 per cent. of wages paid to them on scale.

I do not consider that it will be necessary to covenant men from England, but if such should be the case, the rate of Rs. 200 to Rs. 250 is not too high.

2. That no European, Eurasian, or Parsi be passed or appointed as a driver until he has served a minimum training in locomotive engine fitting of 3 years, as fireman,* 3 years, and as shunting, ballast or assisting driver, 1 year. Total period of training, 7 years.

3. That natives be not passed or appointed as drivers under a period of training of 9 years, as cleaner or apprentice fitter, 2 years, fitting 3 years, firing,* 3 years and 1 year as shunting ballast or assisting driver.

4. The rates of wages during the period of training to be regulated so as to be suitable to the prices of staple food of the Province as the case may be, up to the and until such time as the staff as qualified for post of firemen, when the fixed scale and rates of, which may have been adopted, as deemed necessary, within the maximum and minimum fixed scale and rates of wages universal to all railways.

5. With the above system under a compulsory minimum period of training, the railway managements will find the necessity of organizing a proper mode of training in its several branches, and they will gain in the formation of an efficient and economical staff, and be relieved from the continual anxiety of drafting men from labor in other branches of mechanical and other trades while at the same time, European and Eurasians will be deterred from joining the driving staff, owing to the compulsory period of training and the low rates of wages current with the training period. For the same reason a large number of men, such as soldiers, sailors, and loafers, will no longer be induced to seek occupation on Indian railways, but at the same time a better class of youths will join the staff.

Under the above the desired object of obtaining an efficient and economical driving staff will be gained.

Unless some such measures as recommended herein on the system of training are adopted universally by the management of Indian railways, the reduction of wages of driving staff will effect an economy at the sacrifice of efficiency, which is at all times pernicious and undesirable.

* NOTE.—Firing period may include 1 year as engine turner.

Appendix A to Question No. 14-B.—contd.

Demi-official dated 5th October 1890.

From—The Agent, Southern Mahratta railway,

To—The Director General of Railways.

I beg to enclose a confidential note by the Locomotive Superintendent of this line on the Director General of Railways' note of 23rd July 1890.

Note by the Locomotive Superintendent, Southern Mahratta railway.

It is proposed to offer remarks upon the note by the Director General, paragraph by paragraph.

Para. 1.—The wages, &c., paid to engine drivers form a very important item of railway expenditure, and doubtless economy might be effected by modification of rules regarding pay, allowances, &c.—

Para. 3.—On the Southern Mahratta railway and on some other lines there are three scales of pay. Experience on the Southern Mahratta railway shows that the Eurasian and European born in India are not in danger of being ousted from employment as drivers;

It is the imported European who is likely to find the value of his services gradually depreciated owing to the increasing numbers of Eurasians and natives who are adopting driving as a means of livelihood.

Para. 4.—On the Southern Mahratta railway, Eurasians, with good experience as drivers, are started on Rs. 3 per day, equivalent to Rs. 78 per month of 26 days; the *maximum* starting rate for European drivers of good character and long experience is Rs. 4 per day, equivalent to Rs. 104 per month; usually European drivers are started on Rs. 3-8 per day.

Para. 5.—The difficulty referred to, *viz.*, that of making Eurasians recognize that they cannot expect to receive pay equal to that drawn by imported Europeans exists, but to a very small extent in Southern India.

Para. 7.—Rates for Native drivers must apparently vary in different parts of India, as do the rates for both skilled and unskilled workmen.

Para. 8.—The wages of shunters and firemen would naturally vary with those of drivers.

Para. 9.—With regard to allowances, over time should be paid for at the same rate as ordinary time, and, assuming that an ordinary day's work consists of 8 hours, drivers may ordinarily be allowed to make time and a quarter, and, exceptionally time and a half. Batta rates are too high on several lines, there should be separate rates under each scale.

Para. 10.—When important modifications in rules affecting the pay and privileges of workmen are introduced, it would be not only unfair but generally impracticable to make them apply to existing staff without at least very considerable notice.

2. Generally, with regard to the expressed aim and object of the Director General's note, it is suggested that concerted action is unadvisable; the principles upon which the necessity for and possibility of reductions are based should be promulgated in clear terms but confidentially.

The general adoption of three distinct scales of pay is undoubtedly advisable, but, it is recommended that transfers from one scale to another shall be permitted under exceptional circumstances; the results of the general introduction of the three scale system would be the gradual but certain exclusion of the imported European driver and a reduction in running expenses; it would rest with each administration to endeavour to so select and train the country-born men whether European, Eurasian or Native, as to prevent increased expenditure under fuel-consumption and repairs of engines, otherwise, the expected economical effect of the proposed change in system would not prove of any practical advantage to those concerned in the general results of working.

Appendix A to Question No. 14-B.—contd.

Demi-official No. 368, dated 11th October 1890.

From—The Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Director-General of Railways.

I send herewith copies of the notes by the Locomotive and Carriage Superintendent, Bombay, Baroda and Central India railway, and the Locomotive Superintendent, Rajputana-Malwa railway, on the subject of Colonel Conway-Gordon's Note on Pay and Allowances of engine drivers.

The discussion of the subject at the next conference may do good if the Locomotive departments of the several railways are represented there.

No. 562-A, dated 13th September 1890.

From—The Locomotive and Carriage Superintendent, Bombay, Baroda and Central India railway,

To—The Acting Agent, Bombay, Baroda and Central India railway.

I have considered the confidential correspondence under your above quoted, and have chiefly to remark that I have long ago adopted different scales of pay for drivers with the purpose of encouraging a class of Eurasians and Europeans born in India.

The scales of pay in force are as follows:—

					Per day.	Batta per night.
					Rs. a. p.	Rs. a. p.
SCALE A.						
Probationers	...	...	...	...	0 12 0	0 4 0
Firemen	...	...	...	1st year...	1 0 0	0 4 0
"	...	...	...	2nd "	1 8 0	0 8 0
"	...	...	...	3rd "	2 0 0	0 8 0
"	...	...	...	4th "	2 8 0	0 8 0
Turners	...	...	...	...	3 0 0	
Shunters and branch drivers	...	...	...	...	3 8 0	
Main line drivers	...	...	...	...	4 0 0	1 0 0
"	"	...	...	...	4 8 0	1 0 0
"	"	...	...	...	5 0 0	1 0 0
"	"	...	...	...	5 8 0	1 0 0
"	"	...	...	...	6 0 0	1 0 0
"	"	highest ordinary	...	...	7 0 0	1 0 0
"	"	special rate	...	...	8 0 0	1 0 0
SCALE B.						
Probationers	...	...	...	...	0 8 0	0 4 0
Firemen	...	...	...	1st year	1 0 0	0 4 0
"	...	...	...	2nd "	1 8 0	0 8 0
"	...	...	...	3rd "	2 0 0	0 8 0
"	...	...	...	4th "	2 8 0	0 8 0
Turners	...	...	...	...	3 0 0	
Shunters and branch drivers	...	...	...	...	3 8 0	0 8 0

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				Per day.	Batta per night.
				Rs. a. p.	Rs. a. p.
Main line drivers	...	...	...	4 0 0	1 0 0
" "	...	...	...	4 8 0	1 0 0
" " maximum	...	...	...	5 0 0	1 0 0
Probationers	SCALE C.	...	...	0 8 0	0 3 0
Firemen	...	...	...	1 0 0	0 3 0
"	...	...	1st year	1 8 0	0 6 0
"	...	...	2nd "	2 0 0	0 6 0
"	...	...	3rd "	2 8 0	0 6 0
Turners	...	...	4th "	3 0 0	0 8 0
Shunters and branch drivers	...	...	...	4 0 0	0 8 0
Main line drivers, maximum	SCALE D.	...	...	0 8 0	0 3 0
2nd Firemen	...	...	...	0 12 0	0 3 0
1st "	...	...	...	1 0 0	0 6 0
Turners	...	...	...	1 8 0	0 6 0
Shunters	...	...	...	2 0 0	0 8 0
Branch drivers	...	...	1st two years...	3 0 0	0 8 0
" " maximum	...	...	2nd "		
	...	...	5th year		

Scale B is expressly for the half caste or second class European, and contains many men who make good, careful drivers. There is sometimes difficulty in classifying them, but each case is treated on its merits.

Scale C is for English speaking natives of India, mainly Parsis. I think that even a lower rate than they now get would be enough, but I found it impossible to enforce it, and in fact there was great agitation and a partial strike when the present scale with a maximum of Rs. 4 was adopted.

Scale D is of little importance now; it includes only a few hindoo and mahomedan drivers, who cannot speak or write English, and work only on small branch lines; but if class C could be reduced to D, it would make an important difference.

Scale A is the one containing the salaries Government would like to see reduced, and, as far as this company is concerned, the number of men in it has been much reduced, and the maximum pay of Rs. 8 per day of eight hours, which I shew as a special rate, is only now given to the men running one train, the mail.

This company never now obtains English drivers direct from England, and the only covenants existing are with men who have been in the country 10 years or upwards; the tendency, however, remains while scale A remains for the picked men, who get into it, to go on to the highest rate of pay.

I don't see my way now to the abolition of scale A; we feel the want of a nucleus of first class engine men. My anticipation is that scale A will gradually die down, and as scale B improves, it will finally take the place of A. I think there would be good done by discussing the subject at a conference, but I don't think that such a conference should consist entirely of men who had nothing to do with the Locomotive departments, and who might decide upon some measures, which Locomotive Superintendents would find it impossible to carry out.

Appendix A to Question No. 14-B.—contd.

Dated 30th September 1890.

From—The Locomotive Superintendent, Rajputana-Malwa railway,
To—The Agent, Bombay, Baroda and Central India railway.

There are no covenanted drivers employed on the Rajputana-Malwa railway at present, nor has the necessity for importing staff from England been felt, whilst there is no scarcity of European drivers born in the country and Eurasians trained on Indian railways, and frequently men of English railway experience.

2. Whenever possible to secure staff on less than the standard minima salaries, this has always been done.

3. The large allowances earned in former years has to some extent been lowered by the introduction of payment by the trip system. As stated in Colonel Conway-Gordon's note, it has been found more economical in some cases to reduce the remuneration in overtime by an increase in staff.

4. With the advantages of one standard rate of pay for engine drivers, those lines of railway (for instance, the Madras railways) where the common articles of diet are cheapest are specially benefited, and I would suggest the provision of an allowance (similar to the "Biluchistan allowance") for those provinces and districts in proportion to the dearness of those places.

Demi-official No. 13086, dated 22nd November 1890.

From—The Agent, Great Indian Peninsula railway,
To—The Director General of Railways.

With reference to the confidential note by the Director General, received with yours of the 15th August, regarding pay and allowances of engine drivers, I enclose you a memorandum by our Locomotive Superintendent, Mr. Jackson.

Our present rules were brought into force so recently as January 1889; they, of course, could only be made applicable to men engaged or promoted subsequent to that date, although it is open to the older hands to come under these rules if they choose to do so. We believe they will result in time in a considerable decreased expenditure for driving wages, but their full effect will not be felt for a few years to come.

These rules were settled after a protracted consideration of the question here and at home in view of reducing the cost, and you are aware that with this class of employes it is felt to be undesirable to make frequent changes; and as our new method of rating and calculating time has not yet reached a large proportion of the staff, I would prefer, so far as this railway is concerned, to leave the matter undisturbed for the present and not bring it forward at the next conference.

Note dated the 14th November 1890, by the Locomotive Superintendent, Great Indian Peninsula railway.

With reference to the confidential note by the Director General of railways on the subject of pay and allowances of engine drivers on Indian railways, I would offer the following remarks.

As regards the question as to whether it would be desirable to bring forward the subject at a railway conference, I would say that the Great Indian Peninsula is quite satisfied with its existing rules on the subject, and that it will take from five to ten years before the effect of these rules can come into anything like general operation over the whole line. I think there is room for improvement on some railways, and that on some points there ought to be uniformity as regards the broad principles upon which engine drivers are remunerated. These broad principles should be based, as far as possible, upon a system of payment based upon the market value of the work performed, and a due consideration to the circumstances under which the work has to be done; for instance, I do not think there are many good engine drivers on the Great Indian Peninsula who would take service on the frontier lines even if they were offered large increases of pay.

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To deal with Colonel Conway-Gordon's note, I think the time has passed when railway companies need bring out engine drivers from England. The Great Indian Peninsula has not imported any since 1882. Under these circumstances there need be no necessity to retain a special rate of pay for them.

The actual monthly salaries of drivers are not the sole guide as to drivers' earnings; for instance, the amount of overtime to be made, and whether it is paid for at the ordinary rate, or at some higher rate, is really of more importance to a driver than a few rupees in his nominal rate.

In considering this question I do not think that any good would arise if we were to consider only how they would operate at the present time, but rather we should look to how matters will stand, say, some years hence. It is, of course, impossible to say what may be the political or other causes which will operate 7 years hence, but I think the following will perhaps represent the position then:—

A.—The Hindu drivers, such as are employed on the East Indian railway, will not, as a body, be qualified to do really first-class work, and those who are will be in a position to demand much higher wages than they are receiving now.

B.—That all other really first-class drivers, such as those qualified to work main line trains, and after say ten years' service in that capacity, will be in a position to demand, say, about an average of—

A minimum of Rs. 120 to Rs. 150 a month.

An average of Rs. 160 to Rs. 220 a month.

Of course, during the previous ten years they would have been earning much less.

As regards the suggestion that overtime should be paid for at some lower rate than ordinary time, I do not think that this would work well; but I do not think it wise that overtime, including Sunday time, should be paid at any higher rate than ordinary time. In the new rules introduced on the Great Indian Peninsula for all hands engaged or promoted since January 1889, overtime and ordinary time are paid for at the same rate.

Dated 29th November 1890.

From—The Manager, North Western railway,

To—The Director General of Railways.

In reply to your demi-official of 15th August 1890, I enclose a note on the subject of pay and allowance of engine drivers by Locomotive Superintendent, and beg to add that both he and I are of opinion that the matter might advantageously be brought forward at the next general committee meeting of Locomotive Superintendents, but we consider that the discussion of this special departmental detail by the general railway conference would perhaps not be expedient.

Note by the Locomotive Superintendent, North Western railway.

In reply to your memorandum of 18th ultimo, which I was prevented from answering earlier through absence from Lahore, I have the honour to state that I entirely concur in the views advanced by the Director-General of railways, and have no hesitation in saying that the rates in the memorandum are in many cases excessive; but, while agreeing in the main, I think that the details found in schedules A, B, C, D, E, F, and G are rather likely to mislead; the maxima in some cases are abnormal and are really only applicable to individual cases, which only occur once or twice in a couple of years.

I also think that adding the special allowance to the substantive rate, as in the case of the North Western railway, has tended to mislead; it gave the idea that the whole body are so treated, while it really only applies to a very few. Speaking broadly, I hold that instead of having specially advanced the maximum by 10 per cent., as the Government did two years ago, that ordinary maxima

Appendix A to Question No. 14-B.—contd.

should have been reduced by that rate for all subsequent engagements, the then ordinary rates being considered sufficient for meritorious service.

The fact of having included Parsis among natives has also tended to run up the native figure to long beyond its practical application.

As to the measures which should be taken to improve matters, I fear the introduction of a 3rd class would carry with it a class distinction—a thing we are so anxious to prevent,—and that probably without any special steps beyond that of lowering the minimum and maximum rates we could effect the same object. It would certainly be more gradual in its effects, and therefore less likely to stir up dissatisfaction than any more complete and comprehensive scheme.

My opinion is that a 10 per cent. reduction in minima and maxima will meet the case for Europeans, and that the native element requires no correction. In dealing with labour question, Government cannot be too cautious, and should interfere as little as possible with the rules regarding supply and demand.

Dated Rangoon, 13th March 1891.

From—The Manager and Engineer-in-Chief, Burma state railway,

To—The Director General of Railways.

With reference to your demi-official letter of 15th August 1890, I beg to forward herewith a copy of a note by Mr. C. E. Cardew, Locomotive Superintendent on this line, whose opinion I requested on the question of the pay and allowances of engine drivers, &c., on Indian railways, and in his opinion I generally agree, and consider that no good purpose would be served by referring such a subject to the railway conference; and it is doubtful also if a consultation between a committee of locomotive officers would lead to much good, as the circumstances of each line vary much one from another, and no hard-and-fast rules could be laid down, therefore, for general adoption.

I regret the delay that has been permitted through oversight in replying to your letter.

Note, by the Locomotive and Carriage Superintendent, Burma state railway.

The paragraphs of this note correspond with and reply to the various points raised in the several paragraphs of Colonel Conway-Gordon's note. I may say at once that, generally speaking, I am unable to concur in the views he has expressed. Whilst no doubt much might be effected towards securing comparative uniformity in the pay of enginemen all over India, I do not believe that on the whole this class of workmen are overpaid. I cannot believe that in this particular case the law of supply and demand has failed to act here as it does elsewhere. Some individual railway administrations may pay their men rather highly, but just as certainly others pay them very low; the former by so doing secure the best men in the country; the latter get all the scum and dregs of the other lines.

2. I consider that no amount of recording of opinions by different railway administrations will bear useful fruit unless afterwards the whole question be discussed and settled by a conference of Locomotive Superintendents. I do not consider that the railway conference, which is chiefly composed of Managers and Traffic men, would be a fit body to effect a satisfactory settlement.

3. I here dissent entirely from Colonel Conway-Gordon's opinions. Some of the best enginemen I have had and now have under me are country-born Europeans and Eurasians. Some of the worst have been covenanted men brought out from home. Colonel Conway-Gordon's opinions are, I know, the popular ones, but they don't square with facts known to those who have to deal with these two classes. However well the home born man may have been trained, he often gets demoralized out here, and becomes utterly careless and lazy, and far more affected by the climate than the country-born man, who, if he survives to mature manhood, is generally hale and strong. Besides this, my own experience is that a very poor lot are shipped from home now-a-days as covenanted men to what used to be

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some years ago. Most of them are weedy immature firemen only. The pay offered is not sufficient to attract really competent men, who see they have a chance in the old country. Colonel Conway-Gordon has also entirely overlooked the fact that an immense number—the majority in fact—of our European home-born men are ones who were never covenanted, but who have come out as adventurers to India. Many, perhaps the most, have arrived here as sailors, and have learnt their work in the country as firemen. Certainly very few have been either firemen or enginemen on home railways. It is a rare case to find one such who was not originally covenanted out. The few trained men who were not so engaged are generally men who have got into trouble at home and have shipped as sailors. This large class of home-born adventurers have furnished some of our very best and very worst men. The class is not being recruited so much as formerly. The employment of native enginemen has reduced the ranks of the European firemen required for training up as enginemen. At the same time their pay has gone down, so that there is not the former inducement to sailors to desert their ships and get employment on the lines running down to the sea.

4. On state railways I do not consider it necessary to fix any minimum for engineman's pay. As a matter of fact, there have been lots of men engaged on Rs. 100 and less, but they are rarely worth having. The extra repairs and consumption of coal far outweighs their cheap pay. I know one state line that went in heavily for this sort of trash some years ago, but very soon repented it. Cheap initial pay can only be safely secured by training your own men from firemen. Colonel Conway-Gordon has omitted from his schedule G the two lines with cheapest staff, namely, the *M.R.* and *S.I.R.*

5. I agree with Colonel Conway-Gordon that it may be difficult to bring it home to men engaged in this country that they are too liberally treated when paid at the same rate as men, who have had to leave their homes in England. I think after he has perused my remarks above he will conclude it to be impossible. This sentiment of expatriation should have nothing whatever to do with the question. Two men with exactly the same work and abilities should be paid at the same rate. Any other principle will land us in paying a man according to his color or the geographical position of his father's house. Any concession granted to covenanted men should be solely in the shape of more liberal leave rule and leave allowances. There is no need for any allowance to be called "colonial allowance." A man's covenanted pay should be inclusive. If an allowance were decided on, it would surely be more appropriate to call it "Indian allowance," seeing that India is not a colony.

6. (a) I do not believe that the average market rate of European and Eurasian drivers can be reduced. Our men on Rs. 120 to 220 per month at 30 days to the month earn Rs. 4 to 7½ per day. Taking the purchasing power of the rupee in India as about the same as a shilling at home (which is not far from its real value), this represents a daily wage in England of 4s. to 7s. 6d., which are the exact rates paid to drivers on the principal home lines. I have no hesitation in saying that from personal knowledge I am convinced that the European engineman on a home line is on the whole better off than he is out here. The idea that we should take Australia as our standard must have been suggested under some misapprehension, as enginemen are there paid from 10s. to 20s. per day, probably the highest wages in the world for such work. Allowing that the shilling in Australia has not a much greater purchasing power than Re. ½ in India, even then enginemen's pay there may be reckoned as equal to Rs. 5 to Rs. 10 per day in India.

(b) I should object to classing Parsis as any other than Natives of India, which they have been for centuries past. They get better pay than other Natives, simply because they are better educated, and have taken kindly to mechanical callings. The scale for Natives should be made wide enough to include them. It will be a good thing for Indian railroads when we no longer need these race distinctions of pay and grading. This will come about gradually by levelling up a good

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deal and levelling down only a little. With increasing civilization and education this appears to be one of the laws of supply and demand. Till that happy time comes we should reduce race distinction to a minimum. I have known some Parsi drivers as good or better than their European fellow workmen.

7. I quite agree with Colonel Conway-Gordon that there is not much margin for further economy in the case of native enginemen. What is more, I hold that till the class gets better pay it will never improve, and a better stamp of men will never be attracted to it. What can be expected of the future of a class paid so low as Rs. 21 to 30 or Rs. 20 to 40 as shewn in Schedule G? The only railway taking a sensible view of the question appears to be the Bombay, Baroda and Central India railway, with a pay of Rs. 105 to 150.

8. I do not approve of making the smallest reduction in the pay of European firemen and shunters. We have very few at any time, and we want to attract educated likely young men who have had some workshop training. Their present pay on most lines does not do much more than keep them in food and clothes respectably.

9. (a) On the question of allowances, I am far more in agreement with Colonel Conway-Gordon. It is, I think, little short of a scandal to see men drawing allowance to the extent of their salary, and twice their salary. Nor do I consider there is any need for it. Usually it means that there is a scarcity of engines. In that case the correct course is to work the engines with a double shift of men. Government some eight years ago urged this on the different railways strongly. There was, however, great prejudice shewn against it under the apprehension that the engines would be badly treated and suffer, and the matter has dropped. I, however, did not share any such fear, but tried the plan successfully on the Nagpur and Chhattisgarh line, and would do so again if in similar circumstances I found myself short of engines. For short runs in particular, where there is no difficulty in changing the men, the system is admirably adapted, such as, for example, on Ghât lines where the men always make a lot of overtime if not changed. The double shift system would decrease the overtime bill, but it would increase the salary bill even more. I hold, however, that by getting increased mileage out of our engines, it would on the whole prove really economical.

(b) Regarding an automatic check against excessive overtime, it must be recollected that the whole of the sums shewn in Colonel Conway-Gordon's note as allowances do not represent "overtime worked." Much of them is made up of "day and night allowances," overtime granted for "breach of rest," "shortened shed-days," and "Sunday allowances." Unless the sums shewn are thus analysed, it is impossible to say what actual "over-work" they really represent.

Particulars.	Overtime.	Amount.	TOTAL.
	D. H.	Rs. A. P.	Rs. A. P.
Overtime worked (a) ...	7 0	32 10 8	...
" breach of rest...	5 1	42 9 4	...
" Sundays &c....	4 0		...
Overtime grants ...	16 1	75 4 0	...
Day and night allowances	...	17 4 0	...
TOTAL (b) ...	...	...	92 8 0
N. B.—(a)=23% of a month.	...	...	...
(b)=66% of salary	...	...	...

I, however, marginally give a sample from this railway which is very significant, as it shows that a man earning 66 per cent. of salary as allowances only worked 23 per cent. over the month of 30 normal days of 8 hours. Of course allowances for breach of rest and shortened shed-days represent so much loss of rest, but that is not so bad as continuous over-work on the foot plate. Of these items of "overtime granted, but not

Appendix A to Question No. 14-B.—contd.

worked," I would abolish "*day and night*" and "*Sunday*" allowances altogether. As it is the normal condition of enginemen's service to be continually travelling, they should not get "*day and night*" allowances, which are a species of travelling allowance. Their salary should include this. Sunday work should be kept down and made as unpopular as possible. Instead of giving an allowance of an extra day for Sunday work, I would rule that men working on Sunday be booked spare on the first day after their return to their home station. The Traffic department also should be prohibited from running Sunday goods trains, as they do all over India quite needlessly (whatever they may assert to the contrary). By stopping Sunday goods trains, the overtime bill would be immensely reduced and thousands of rupees added to the profits of the railways. No goods are taken from traders on Sundays. Hence with a little arrangement no Sunday goods trains should be needed. The mixed trains could do all needful. Only those *starting* on Sunday are granted Sunday allowance. Hence no goods trains should be started after midnight Saturday, and those reaching a changing station during Sunday should be halted till Monday the same time.

10. I agree with Colonel Conway-Gordon that any alteration of the rules should not affect men at present in the service, but only so far as their *salaries* are concerned. Their *allowances* should be as much open to revision from time to time as in the case of all other Government servants, except in the case of covenanted men of course. To prevent discontent it would, of course, be politic to adjust their salaries to meet altered rules for allowances, but to have men serving under different sets of rules would be an intolerable nuisance in the office. Any change made must be made to apply to all but men working out covenants.

No. 129-D. G., dated 24th April 1891.

From—The Manager, Oudh and Rohilkhand railway,

To—The Director General of Railways.

I have the honour to acknowledge your No. 368 (Confidential), dated the 24th February 1891, containing a note by Colonel Conway-Gordon, R.E., on the pay and allowances of engine drivers on Indian railways.

2. I understand the note to suggest a reduction being made in the pay of drivers engaged in India, and to inquire what would be a fair rate of salary for this class of driver. An opinion is also asked if the pay of native drivers is susceptible of reduction.

As regards allowances, a reduction in the overtime is also suggested.

3. I enclose a report by Mr. Winmill, the Locomotive Superintendent of this railway, written upon Colonel Conway-Gordon's note, which may be of use, though it does not directly answer the questions asked.

4. The questions indeed are very difficult to deal with. In the first place, there is the difficulty which Government must find in attempting to control rates of wages at all, especially in a country like India, where the conditions vary so much. Then comes the question of race distinction, which also presents many intricacies.

5. I confess I do not see how any rate of wages is to be fixed which shall be equally applicable throughout India, and I am sorry to say I cannot suggest any practical measures for directly reducing the pay and allowances of drivers in India.

6. Mr. Winmill's report, however, shews that under the system of pay and allowances on the Oudh and Rohilkhand railway a driver's pay varies more directly with the work he actually performs than is practicable under the Government scale as laid down in the code, and by its introduction it is practicable to remunerate men liberally for work done without at the same time incurring

Appendix A to Question No. 14-B.—contd.

undue liability through slackness of traffic or sickness or absence on the part of the man. But the subsistence allowance, which is the fundamental principle of this system, must vary with each individual man employed with the part of India where he is employed, and even with such ephemeral conditions as press of traffic, competition, &c., I do not see how that can be fixed universally, or even general limits indicated which should apply to all India.

No. 383-M., dated 23rd September 1890.

From—The Locomotive and Carriage Superintendent, Oudh and Rohilkhand railway,

To—The Manager, Oudh and Rohilkhand railway.

1. I think the subject might be discussed with a view to introduce one system of payment throughout India, or at any rate for new railways.

2. The state railway system is, in my opinion, most unsatisfactory, and I would strongly urge that a mileage system of payment be introduced.

3. A driver should be paid a retaining fee or subsistence allowance, to be drawn when not working a train.

4. When working a train he should be paid a mileage allowance for each mile run.

5. As many rates of subsistence and mileage allowances as may be considered necessary can be introduced, the subsistence allowance being such that advantage would only be taken of it by men when absolutely obliged to do so through slackness of traffic, sickness, &c.

6. Of course both the subsistence and mileage allowances must be fixed with due regard to the labour market and class of railway; for instance, rates on the Sind-Pishin railway must necessarily be much higher than on the Oudh and Rohilkhand railway.

7. For all drivers classed as Europeans, which includes Parsis, I would suggest the following scales for Oudh and Rohilkhand railway, *viz.*—

Subsistence allowance.				Mileage. Rate per hundred miles.
Rs.				Rs.
140 per month	...	...	...	7
120 " "	...	...	...	6
100 " "	...	...	...	5
80 " "	...	...	...	4
60 " "	...	...	...	3
50 " "	...	...	...	2

NOTE.—Subsistence and mileage allowances must not be drawn on the same day.

8. The advantages in favour of the mileage system are:—

A.—As the traffic increases or decreases, so will the expenditure without having in the latter case to dismiss men; and it would be advantageous both to the men and the railway administration to keep drivers on a small subsistence allowance until the busy season, when of course their earnings would increase in proportion to the mileage run.

B.—It would not be necessary to lay down any hard-and-fast rules for men engaged in England or India. The Locomotive Superintendent would post a man to any grade he considered him fit for, and length of service need not entitle a man to promotion to a grade carrying a higher rate of subsistence and mileage allowances.

Appendix A to Question No. 14-B.—contd.

Demi-official dated 11th May 1891.

From—The Agent, Indian Midland railway,

To—The Director General of Railways.

In reply to your demi-official No. 660-E., dated 15th August 1890, I have the pleasure to inform you that I think it would be well if the subject of pay and allowances of engine drivers were pursued, and subsequently, if necessary, discussed in conference.

As a contribution from this line, I enclose copy of a report by our Locomotive Superintendent on the points brought to notice in the note received with your letter under reply. I entirely concur in Mr. Brock's views, and think you will find that our rules meet most of the objections and difficulties referred to in the note.

No. 1965, dated 16th March 1891.

From—The Locomotive Superintendent, Indian Midland railway,

To—The Agent, Indian Midland railway.

Your No. 413-5218 of 22nd August last.

I regret I have not replied to your above earlier, the papers in connection with it were mislaid by an oversight.

2. Colonel Conway-Gordon's circular, I observe, deals with only the older Indian railways, and it is evident from his marginal notes that upon the North Western railway the salaries of drivers are maintained at too high a standard. Upon this railway the maximum salary of a driver is Rs. 200 per mensem, and that only for a passenger driver.

3. In the third paragraph of the note under reference, it is mentioned that there are practically only two scales of pay on the majority of Indian railways. This is not the case with us, as we have practically four scales as under:—

			Maximum salary.
Class 1, Passenger drivers	...	...	Rs.
" 2, Goods	"	...	200
" 3 "	"	(for Parsis)	160
" 6 "	"	(for Natives)	120
		...	55

under the last class come Hindu and Mahomedan drivers who are acquainted with English.

4. It is said that most Locomotive Superintendents would prefer to have covenanted drivers from England, but we have not found it necessary upon this railway to import a single driver; and I am well satisfied with the men we have, the majority of whom have received their training in this country. For my part I would not for many reasons have a covenanted driver upon the line if it could be avoided.

5. In my opinion the day has gone by for importing this class of workmen as there are any number of men of European parentage and East Indians in the country who could be trained by railway administrations to meet their requirements. A covenanted driver is a distinction which causes a lot of jealousy among the uncovenanted hands, and gives the covenanted men an undue idea of his importance. In our rules all invidious distinctions have been avoided, and we even omit the distinction "European."

6. The line is drawn between passenger and goods drivers. Our best European hands would, of course, be put on the passenger work; and as these men draw Rs. 40 more than the goods men, this is practically equivalent to what Colonel Conway-Gordon terms a "Colonial allowance" in his note without our mentioning it.

Appendix A to Question No. 14-B.—concl'd.

7. Our 2nd class, or Goods drivers, whose maximum pay is Rs. 160, would consist chiefly of East Indians, or men who under Colonel Conway-Gordon's note would be classed as "uncovenanted."

8. I would certainly not pay Parsi drivers at either of these rates, as they require a separate scale to themselves, and Rs. 120 in their case is a fair and reasonable remuneration.

9. The maximum of Rs. 55 for our Hindu and Mahomedan drivers is somewhat over the rate for ordinary native drivers; but this is due to their being required to speak and read English, as I consider this an essential qualification for the safe working of trains.

10. The scales of pay for our firemen are based on the same principles proportionately lower.

11. In regard to the reference made to overtime allowances by Colonel Gordon, I would mention that on this line "overtime" is paid at the same rate as ordinary time, so that no extraordinary inducement is held out to drivers to work overtime. On some lines overtime is paid at a higher rate, but this is certainly not necessary, and I suggest its abandonment.

12. In India drivers draw overtime chiefly during the busy season, when every locomotive is taxed to its utmost to cope with the traffic. The experiment of putting two sets of men on one engine to reduce the overtime was tried on the Great Indian Peninsula railway and did not prove a success, as it cost the company considerably more money than if the engine had been worked with a single staff. In the monsoon, or whenever traffic was slack, there were a large number of men in excess of requirements for whom but little work could be found, but who had to be paid their month's wages. It is therefore clear that provided a railway does not pay overtime at a higher rate than ordinary time, there is no loss in a large amount of overtime being earned by the men. In fact, it is a distinct gain, as, owing to the fluctuations of traffic in India, the company have fewer men on their hands when the traffic is slack, to whom they guarantee a month's wages whether work can be found them or not.

13. In conclusion, I would say that in my opinion there is room for reform in the Government system of paying drivers. I refer chiefly to the rules for overtime which admit of the same being earned upon each day's work. Under our rules a man is paid no overtime until he has first worked 208 hours, his month's duty. It is certainly quite liberal enough to guarantee a man a month's pay without paying him overtime on the very first trip he makes. The Government system frequently results in a driver doing less than a month's work, but being paid his month's wages and a large amount of overtime as well.

No. 115.

FROM

THE SECRETARY,
RAILWAY CONFERENCE OF 1893.

TO

THE AGENTS, BOMBAY, BARODA AND CENTRAL INDIA, GREAT INDIAN PENINSULA,
EAST INDIAN, SOUTH INDIAN, SOUTHERN MAHRATTA, AND INDIAN MIDLAND
RAILWAYS.

THE AGENTS AND CHIEF ENGINEERS, BENGAL AND NORTH WESTERN, ROHILKUND
AND KUMAON, AND BENGAL-NAGPUR RAILWAYS.

THE AGENTS AND MANAGERS, MADRAS, AND, HIS HIGHNESS THE NIZAM'S GUARAN-
TEED STATE RAILWAYS.

THE MANAGERS, NORTH WESTERN, EASTERN BENGAL STATE, OUDH AND ROHIL-
KHAND, BURMA STATE, AND JODHPORE-BICKANEER RAILWAYS.

THE MANAGER AND ENGINEER-IN-CHIEF, BHAVNAGAR-GONDAL-JUNAGARH-PORBAN-
DAR RAILWAY.

THE AGENT AND GENERAL MANAGER, DARJEELING-HIMALAYAN RAILWAY.

THE SECRETARY, CALCUTTA PORT COMMISSIONERS' RAILWAY.

Simla, the 22nd August 1893.

SIR,

In continuation of my letter No. ¹⁰⁰~~76~~ dated the ^{10th August}~~16th December~~ 1893,
forwarding ^{revised} lists A and B of the subjects to be placed before the Railway
Conference of 1893, I am directed to forward a copy of the papers relat-
ing to question (A) No. ¹⁴~~14~~ of list ¹⁰~~10~~ referred to, viz.,

No. 14 B - Pay and allowances of Engine Drivers
Firemen and Shunters.

I have the honor to be,

SIR,

Your most obedient Servant,

Sd/- W. T. Hunt.
Secretary.
24.8.93

Documents accompanying.
(As noted above.)

Three copies of the question.

115
7408/53

No. 116, dated the 22nd August, 1893.

Copy, with copy of papers referred to, forwarded, for information, to the Secretary to the Government of India, Public Works Department; the Joint Secretary to the Government of Madras, Public Works Department (Railway Branch); the Secretary to the Government of Bombay, Public Works Department (Railway Branch); the Secretary to the Government of Bengal, Public Works Department; the Secretary to the Chief Commissioners of Burma and Assam, Public Works Department; the Secretary to the Resident at Hyderabad, Public Works Department; the Secretary to the Agent to the Governor General for Rajputana, Public Works Department; the Consulting Engineers for Railways, Bombay and Madras; the Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, Central Division, and Assam; the Agent, West of India Portuguese railway; the Agents and Chief Engineers, Assam-Bengal, and Bengal Central railways; the Managers, Cherra-Companyganj, and Jorhat railways; the Agent and General Manager, Dibru-Sydia railway; the Manager and Executive Engineer, Morvi railway; the Managing Agents, Deoghur, and Thaton-Duyanzaik railways; the Secretary and Agent, Nilgiri railway; and the Engineers-in-Chief, Mushkaf-Bolan, Mari-Attock, East Coast Bhopal-Ujjain, and Bina-Guna railways.

By order,

H. S. Hart
Secretary.
22-8-93

Documents accompanying.

(As noted overleaf.)

Five copies of the question.

The Joint-Secretary to the Government of Madras,
P. W. D. Ry. branch, Madras.

P. M. CURRENT No. 7408

Encls 1 (4 S.C.)
Dec. 28. 8. 93

B.
p. 1185 Rgy. Sept 93
Communicated to
the Examr. Guaranteed
Railway Accounts.

7/11/93
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DESPATCHED
10 SEP 93

The Examr. Gd. Rgy. Accts.

J.C.
18/9

A.D.

RAILWAY CONFERENCE, 1893.

A

Questions to be placed before the Railway Conference of 1893, for
decision.

No. 43.

FREE ALLOWANCE ON PASSENGERS' LUGGAGE.

FREE ALLOWANCE ON PASSENGERS' LUGGAGE.

ISSUE.

Whether small packages which passengers take into the carriage with them for their requirements on the journey should or should not be weighed.

No. 10173 T., dated the 9th August 1893.

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

I have the honor to forward herewith a copy of note * * by the Acting General Traffic Manager of this railway regarding the free allowance on passengers' luggage, and would ask that it may be included in the list of subjects intended for discussion at the forth-coming conference.

NOTE, DATED THE 1ST AUGUST 1893, BY THE ACTING GENERAL TRAFFIC MANAGER, BOMBAY, BARODA AND CENTRAL INDIA (INCLUDING RAJPUTANA-MALWA) RAILWAY.

Free allowance on passengers' luggage.

The rule as to free allowance on passengers' luggage on this as well as on other railways is, that the whole of the luggage accompanying passengers, including bedding and any other articles that are required to be taken into the carriage, is weighed and, on the total weight, the usual free allowance is made.

2. With effect from the 1st February 1893, however, the East Indian railway issued the following orders to their staff and asked foreign railways to observe the rule in through booking to and from the East Indian railway.

"With reference to section 75 of the coaching tariff, the staff are instructed that they are not to weigh the bundle of rugs, tiffin basket, and small hand bags which passengers usually take into the carriage with them for their requirements on the journey."

"Walking sticks or umbrellas also should not be weighed. These orders are applicable, whether luggage is booked at the commencement of the journey, or whether full weight is charged for in terms of section 79."

3. The North Western railway has since followed suit with the East Indian railway.

4. Subsequently the East Indian railway confined the above rule to luggage of 1st and 2nd class passengers only, and then introduced the following rule in respect of luggage of intermediate and third class passengers.

"Similarly, however, the rezai or blanket which an intermediate or third class passenger takes with him when travelling during the cold weather, is not weighed."

5. As it is very desirable that there should be uniformity of practice in a matter of this kind, whichever way it may be decided, it appears that the question is one which might with advantage be referred for discussion at the next Railway Conference and if the Acting Agent agrees, undersigned would suggest that this note be sent to the Secretary, Railway Conference, Simla.

P. S.—The Great Indian Peninsula railway have informed us they are not intending to alter their present practice.

RAILWAY CONFERENCE, 1893.

A

*Questions to be placed before the Railway Conference of 1893, for
decision.*

No. 42.

REFUNDS OF OVERCHARGES ON COACHING AND GOODS
TRAFFIC.

(Proposed by the Manager, Oudh and Rohilkhand railway.)

Pls E. 1
7440/93

REFUNDS OF OVERCHARGES ON COACHING AND GOODS
TRAFFIC.

ISSUE.

Desirability of framing rules to regulate the prompt payment of refunds.

No. 538 M, dated the 10th August 1893.

From—LIEUT.-COL. H. M. DRACKENBURY, R.E., Manager, Oudh and Rohilkhand railway,

To—The Secretary, Railway Conference.

- * 1. No. 1374, dated 31st July 1893, from the Traffic Superintendent, Oudh and Rohilkhand railway, to the Examiner of Accounts, Oudh and Rohilkhand railway.
2. Memorandum by Traffic Superintendent, Oudh and Rohilkhand railway.
3. No. 4160, dated 6th July 1893, from the General Traffic Manager, Indian Midland railway, to the Traffic Superintendent, Oudh and Rohilkhand railway.
4. No. 3690 A. C., dated 7th July 1893, from the Traffic Manager, Madras railway, to the Traffic Superintendent, Oudh and Rohilkhand railway.
5. No. 260, dated 10th July 1893, from the General Traffic Manager, East Indian railway, to the Traffic Superintendent, Oudh and Rohilkhand railway.
6. No. 21408, dated 21st July 1893, from the General Traffic Manager, Great Indian Peninsula railway, to the Traffic Superintendent, Oudh and Rohilkhand railway.
7. No. 2631—260 A., dated 4th August 1893, from the Examiner of Accounts, Oudh and Rohilkhand Railway, to the Traffic Superintendent, Oudh and Rohilkhand railway.
8. Letters from the Traffic Superintendent, Oudh and Rohilkhand railway, to the Traffic Managers, East Indian, Indian Midland, Great Indian Peninsula and Madras railways, Nos 1955 to 1958 A., dated 30th June 1893.
9. Memorandum by Traffic Superintendent, Oudh and Rohilkhand railway, dated 2nd June 1893.

I have the honor to transmit herewith certain correspondence* regarding the prompt adjustment of refunds.

2. It is suggested that the subject might be brought forward for discussion at the Railway Conference.

No. 1373—26-A-15-92, dated 31st July 1893.

From—The Traffic Superintendent, Oudh and Rohilkhand railway,

To—The Examiner of Accounts, Oudh and Rohilkhand railway.

Delays to refunds.

I have the honor to forward herewith my office file of papers, on the question of delays to refunds, which I propose referring to the next Railway Conference.

2. You will notice from the accompanying file of papers, that I made a reference on the subject to the leading railways in India, and their opinions are expressed in the replies received from them.

3. I have drawn up a memorandum showing cases in which passengers' fares are generally refunded and in which, if a foreign railway is concerned, reference to the authorities thereof is necessary before the refund is made, and in sending the memorandum to you, I have the honor to request, that you would very kindly comply with the suggestion, as contained in letter No. 290, dated 10th July 1893, from General Traffic Manager, East Indian railway, and return the file of papers as early as convenient, so that the question may be forwarded to the Secretary, Railway Conference, as soon before the 10th August as possible.

Memorandum giving the circumstances in which passengers' fares are generally refunded and in which, if a foreign railway is concerned, a reference to the authorities thereof is necessary before the refund is made.

Below are given the circumstances in which passenger fares are generally refunded and, if a foreign railway is concerned, a reference to the authorities of that railway is made before the refund is granted:—

- (a) A passenger buys a ticket from a station on one railway to a station on a foreign railway, but is unable to utilize it owing to uncontrollable circumstances. The fare is refundable with the consent of foreign railways.

- (b) A passenger purchases a ticket from one railway to a foreign railway station, and uses it short of destination owing to unavoidable circumstances. The fare for the untravelled distance is refundable.
- (c) A passenger buys a ticket, misplaces it, and on arrival at destination pays the excess fare and penalty. He subsequently finds the ticket and applies for a refund of the excess fare and penalty recovered from him. This is to be done with the consent of foreign railways concerned.
- (d) A passenger purchases a ticket which is accidentally mislaid *en route*. He pays the excess fare and penalty at destination, but subsequently proves that his case is a *bona fide* one and applies for a refund of the excess fare, &c., to which he is justly entitled. The amounts excess recovered are refunded with the consent of the foreign railways concerned.
- (e) A passenger buys a ticket to a foreign railway station, but owing to want of room travels a higher class of carriage than that to which he is entitled with the consent of the staff at the starting station and the guard of the train. On arrival at destination, or *en route*, he is challenged and has to pay the difference of fare for the whole distances. This difference of fares is refundable to him with the consent of the foreign railway, provided there is an uniform want of room the whole way.
- (f) The holder of a double journey ticket from one railway station to a foreign railway accidentally gives up the wrong half at destination on the outward journey. On his return journey he is not allowed to proceed holding the wrong half and has to buy a fresh single journey ticket. He is entitled to a refund of the fare of the latter ticket with the consent of the foreign railway concerned.
- (g) The holder of a double journey ticket loses the second-half of it and has to pay the excess fare and penalty. He subsequently proves his case to be a *bona fide* one, and obtains a refund of the excess charges, but before the refund is made, the foreign railways concerned are consulted and their consent obtained.
- (h) The holder of a double journey ticket on arrival at destination is unavoidably detained and applies for a refund of the fare of the second half of the ticket, which is made with the consent of the foreign railway. Refunds are not generally granted on a case of this description, but when the circumstances which prevent the return journey are of exceptional character, it is done.
- (i) The fares of the tickets wrongly stamped and which at destination are treated as expired-date tickets are refundable with the consent of the foreign railway concerned.
- (j) A passenger asks of the booking clerk at a railway station for a ticket to a foreign railway station by a certain particular route, and is supplied through an error with a ticket for the same station by a different route. The passenger goes up to the junction by which he wanted a ticket, buys a fresh ticket and goes to destination. The fare for the unused distance is refundable to him with the consent of the foreign railway.

No. 4160, dated 6th July 1893.

From—The General Traffic Manager, Indian Midland railway,
To—The Traffic Superintendent, Oudh and Rohilkhand railway.

I am much obliged to you for your letter No. 1956 A. of the 30th ultimo, and have read the paper you have written on the subject of the refunds of over-charges with much interest.

2. There has, you are probably aware, been a good deal of informal discussion at different times on the subject, but it has been generally felt that unless a clearing house existed in India there are difficulties in the way of altering existing through traffic methods of this kind.

3. With regard to local cases, the settlement of refunds expeditiously must be left to the different administrations, and there should, I think, be no excessive delay in the submission of claims through the head office if systematic arrangements are made for disposing of them, the responsibility for which rests with each individual railway.

4. In respect to the through claims, I am afraid that the railways of India would not agree to the proposal that these claims within even a limited amount may be dealt with by the district officers of one railway on behalf of another, and I hardly think it would be a desirable arrangement for other than an independent authority to decide matters affecting payment of claims for different railways.

No. 3690-A-C., dated 7th July 1893.

From—The Traffic Manager, Madras railway,
To—The Traffic Superintendent, Oudh and Rohilkhand railway.

Delays to refunds.—Your No. 1958 A. of 30th June 1893.

There is no denying the fact that great delays do occur in refunding sums of money to which the public are entitled, but I fear that there are very few Indian railways which would agree to the "free hand" contained in the proposals which accompanied your letter. They would in my opinion be altogether unsuitable for a staff such as that employed on the Madras railway.

No. 290, dated 10th July 1893.

From—The General Traffic Manager, East Indian railway,
To—The Traffic Superintendent, Oudh and Rohilkhand railway.

Delays to refunds.—Your No. 1955 A.

I certainly think measures are needful to promote despatch in making refunds, when due on through traffic. If the question is to be brought before the Conference, I would suggest that the paper be accompanied by a list of cases, to be added to or taken from as decided by the Conference, where refunds, although clearly due, cannot now be made without the consent of all the railways concerned. The list would have greater weight if previously accepted by your Auditor as containing cases where refunds can properly be made without reference.

2. We have recently increased powers of district officers in refunding on local traffic, and there is no complaint that delay occurs when refund is undoubtedly due.

No. 21408, dated 21st July 1893.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—The Traffic Superintendent, Oudh and Rohilkhand railway.

I have the honor to acknowledge receipt of your letter No. 1957-A of the 30th ultimo, and enclosure, as to the question of delays to refunds, &c.

2. I think it would be better to discuss the matter at the next Conference and shall be glad if you will put it in the agenda.

No. 2631—260-A, dated 4th August 1893.

From—The Examiner of Accounts, Oudh and Rohilkhand railway,
To—The Traffic Superintendent, Oudh and Rohilkhand railway.

Delays to refunds.—Your No. ¹⁹⁷³254 15 92, dated 31st July 1893.

I have the honor to return the file of papers received with your above letter.

2. There are no code rules regarding refunds in passenger traffic, but in practice the cases in which refunds are granted are those mentioned in the memorandum forwarded me with your letter.

3. As regards that memorandum I have the following remarks to offer:—

(a)—In this case if the refund be claimed before the ticket has been accounted for, the ticket is made non-issued and the refund is granted without waiting for the consent of the foreign railways concerned. The deduction of 10%, if made in such cases, should, however, be credited to the railways over which the ticket was issued.

(b)—In the case of journey short of destination, refund of the fare for the untravelling portion is also permissible; and might be made without reference to other lines subject to the debit of 10%.

(e)—There is also the converse case of a passenger travelling in a lower class than that to which he is entitled owing to want of accommodation; in such cases, refund of the difference of fares should not be made without reference to every line concerned.

(c) (d) & (f) to (j).—In all these cases refunds are granted in practice after reference to other lines concerned.

There is also the case of a passenger holding or entitled to a pass, who loses the pass or whom the pass does not reach in time and who has consequently to purchase a ticket; in such cases refund is in certain instances granted, but only with the consent of foreign lines concerned.

Nos. 1955—1958 A., dated 30th June 1893.

From—The Traffic Superintendent, Oudh and Rohilkhand railway.

To—The General Traffic Manager, East Indian railway.

" " " Indian Midland railway.

" " " Great Indian Peninsula railway.

" Traffic Manager, Madras railway.

I have the honor to forward a note on the question of delays in the case of refunds, and in doing so would be glad of an expression of your opinion.

If you consider that discussion on the subject may lead to something, I will, on hearing from you, forward the papers for discussion at the next Conference.

MEMORANDUM, DATED THE 2ND JUNE 1893, BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

Claims—Refund of overcharges of coaching and goods.

In a previous paper I discussed the question of claims for compensation, with a view to reduce the serious and long delays which now take place in the settlement of such claims. I now beg to offer some further remarks on the general question of all refunds and the delay there is in obtaining them.

In India owing, no doubt, to an elaborate procedure certifying of overcharge sheets, &c., the delay before a refund can be made is simply enormous, and the annoyance caused to the public by these delays is very great.

If a passenger from Lucknow to Madras in a reserved carriage is charged 10 fares by mistake instead of 5 and a refund is due, an application has first to be made for refund, then all the several railways concerned between Lucknow and Madras have to be referred to, and this simply means considerable delay. In the case of goods the procedure would be even more elaborate; an overcharge sheet would require to be certified by all the several railways and probably not by one officer, but by different officers on each of those railways. What this means in the way of delay, only those who have experience of it can estimate.

A lady travels over two railways, and her ayah, who travels with her purchases a first class ticket instead of a third; the lady applies for a refund;

a month or so after her application is received, one of the audit officers enquires what the number of the ticket held by the ayah is. The lady has not kept the number and naturally is indignant first at the delay and then the nature of the question.

As a marked contrast in the way refunds are dealt with in England and the continent and India, I would quote the following:—

In Bombay before starting for London *via* Marseilles, I paid about £ 3 for sleeping accommodation from Marseilles to Paris. The day I was to leave Marseilles for Paris the "wagon lit" broke down and intimation of this was apparently wired to Marseilles a short time before the train was due to leave. I was dining in a restaurant in the station premises when an official entered, asked for me by name, gave me these particulars and on the spot refunded me the amount I had paid for sleeping accommodation.

In India months would not have seen the refund. If refunds are to be expedited check necessarily has to be loosened, and with this view I beg to offer the following suggestions:

Claims other than those for compensation.

(a) That in local claims for refunds of overcharges either, in coaching or goods all district traffic officers and certain of the larger stations, where more intelligent station masters are employed, be empowered to refund or pay such claims at once, the former from imprest, the latter from station earnings. What subsequent advice and procedure the audit office may require may be left to Auditor or Examiner to decide.

Of course these would apply to ordinary refunds, not claims for compensation, and a list of the nature of such refunds might be supplied to the officer empowered to make them—refunds out of the ordinary only being refundable under the orders of the head of the traffic department.

Application for refunds of this kind made to smaller stations to be referred to the district officers who would be empowered to refund without further reference. If it is considered necessary a limit of say Rs. 100 to station masters and Rs. 500 to district officers might be fixed, up to which amount they may be authorised to settle claims—claims above these amounts being referred to the head of the department.

Through claims.

In the case of these, districts officers might be empowered to settle without further reference in the manner above indicated for all claims not exceeding Rs. 50 in the proportion of any one railway, the heads of departments being empowered similarly to deal with all claims not exceeding Rs. 100 in the proportion of any one railway.

Advice of the nature of claim made and reason for refund being simply forwarded to the several railways concerned, further procedure in regard to audit advice being left to Examiners and Auditors to decide—of course each railway must undertake to abide by the action of the officers making the refund so far as its proportion is concerned. Errors may be pointed out and endeavours made to rectify if possible, but no claim can be laid against either the officer concerned or the railway whose employé he is.

These suggestions, I would add, have been made without going into any details. Discussion, however, may lead to something being done to improve matters, and if this is done, I would feel that the object of this paper has been met.

RAILWAY CONFERENCE, 1893.

A.

*Questions to be placed before the Railway Conference of 1893, for
decision.*

PW $\frac{8.5}{7410/93}$

No. 12.

RECONSIDERATION OF VARIOUS REGULATIONS PASSED AT
THE RAILWAY CONFERENCE OF 1888.

RECONSIDERATION OF VARIOUS REGULATIONS PASSED AT THE
RAILWAY CONFERENCE OF 1888.

ISSUES.

- (i) Regulation 8 (c).—"Return of stock to parent line."—Desirability of revising the wording of this regulation so as to accord with present practice.
- (ii) Regulation 8 (c).—"Return of stock to parent line."—Whether, in order to secure a freer utilization of stock interchanged, this regulation should be modified so as to allow of loaded wagons being diverted on the return journey without penalty.
- (iii) Regulation 9.—"Penalty for contravention of regulation 8."—Whether the amount of the penalty prescribed by this regulation should be reduced.
- (iv) Regulation 10.—"Exemption from penalty."—(a) Whether under this regulation wagons returning with loads booked to junction only with parent line, and made over to parent line without loads being transhipped, are exempted from payment of return mileage in the event of the wagons being moved with their original loads, at the request of the consignee, beyond the junction on the parent line; (b) desirability of introducing a definite ruling to regulate the re-booking of coaching vehicles beyond original destination.
- (v) Regulation 15 (a).—"Demurrage—Coaching vehicles."—Whether coaching stock should be allowed any time, free of demurrage, for loading and unloading at intermediate stations; and, if so, how much?
- (vi) Regulation 16 (a).—"Demurrage—Goods vehicles."—(a) Whether any allowance of time, free of demurrage, should be fixed for wagons received for back loading; (b) whether any free time should be given at original destination when a wagon is booked beyond the original destination at the request of sender or consignee; (c) whether any free time should be given in the case of wagons with cross traffic running over short leads; (d) whether any increase should be made in the running allowance now prescribed by this regulation.
- (vii) Regulation 24 (a).—"Junction returns."—Desirability of modifying this regulation so as to conform to the procedure adopted in practice.
- (viii) Regulation 25.—"Limitation of claims."—Whether this regulation applies to original claims only, or whether it is also applicable to claims for adjustments of previous accounts.
- (ix) Regulation 28 and Regulation 30 (b).—"Routes and junctions."—Whether (a) it should be expressly stipulated that parcels traffic be booked by the shortest route; and (b) the desirability of incorporating regulation 30 (b) with regulation 28.
- (x) Regulation 29.—"Routes and junctions."—Whether the minimum rate, under this regulation, should be fixed between the junctions only, or between points beyond or short of the junctions.
- (xi) Regulation 34 (b).—"Freight on articles lost, damaged or unclaimed."—Desirability of modifying this regulation in order to prevent undue advantage being taken of it as it stands.
- (xii) Regulation 42 (a) and (b).—"Handling of passengers' luggage."—Whether this regulation should be rescinded, and the previous practice, under which coolies were not employed by railways, reverted to.
- (xiii) Regulation 46.—"Receipt notes."—Whether, in addition to the information prescribed by this regulation, all railways should enter on goods receipt notes the "Code marks" which the consignments bear.
- (xiv) Regulation 51 (a) and (b).—"Specie."—How are fractions of a maund of specie to be determined under this regulation?
- (xv) Regulation 58 (a).—"Parcels and passengers' luggage."—Whether, in determining freight charges under this regulation, every parcel should be both weighed and measured.
- (xvi) Regulation 58 (d).—"Parcels and passengers' luggage."—Desirability of introducing a rule to provide that when the distance a parcel of over 10 seers in weight, has to be carried exceeds by 25 or 50 miles only the

distances for which rates are shown in the rate list, the rate for the extra 25 or 50 miles, as the case may be, is to be added to the rate for the next lower distance.

(xvii) Regulation 58 (g).—"Heavy or bulky parcels."—The desirability of discouraging the booking by mail and passenger trains of parcels exceeding 40 seers in weight.

(xviii) Regulation 63.—"Surplus stores."—Desirability of cancelling this regulation, special conditions and rates for carriage of railway stores having since issued.

(xix) Regulation 64 (a).—"Insurance of goods and parcels."—Whether, in order to facilitate computation, the declared value if less than Rs. 49 Rs. 100, and so on; or, as an alternative, whether insurers should not be required to declare value in hundreds of rupees.

(i) Regulation 8 (c).—"Return of stock to parent line."—Desirability of revising the wording of this regulation so as to accord with present practice.

Regulation 8 (c)—now stands as follows:—Horse boxes, carriage trucks, and wagons may be loaded at any place on the route of the homeward journey to any place short of, or on, or beyond, the parent line by the route by which they were received; and in such cases mileage shall be paid only for the distance run under load short of, or beyond, the parent line. The junction station with the parent line shall be considered short of the parent or owning line.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

The wording to be revised to express more correctly the accepted practice. After "received" read as follows:—

"And in such cases mileage shall be paid only when the distance run under load is short of or beyond the parent line."

Add also at end of present rule:—

"Except as to wagons loaded with coal or other stores for the parent line."

The latter addition being required in consequence of the revised conditions for the carriage of coal and stores for foreign lines laying down that they must be booked to the junction even though they be traffic for stations beyond.

(ii) Regulation 8 (e).—"Return of stock to parent line."—Whether, in order to secure a freer utilization of stock interchanged, this regulation should be modified so as to allow of loaded wagons being diverted on the return journey without penalty.

Regulation 8 (e) now stands as follows:—

Empty wagons, horse boxes and carriage trucks may be diverted without penalty on the return journey for a distance of not more than 25 miles in order to secure a return load; and in such cases mileage shall be paid on the diverted distance run under load.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

Under this ruling a foreign railway claimed that a wagon returning to a parent line could be loaded to a branch station of the main line; there its contents unloaded and the wagon returned empty to parent line; in other words, that loaded wagons, &c., may be diverted without penalty on the return journey for a distance of not more than 25 miles, provided they run loaded to the diverted point, the words "in order to secure a return load" being ignored. It is clear, I

think, that the intention was that diversion should be permissible only when the object is to secure a return load to the parent line; but it has been contended that as the aim of the Conference rules is to secure the utilization of stock, this object is equally secured by diverting wagon under load and under mileage to the parent line as diverting it for a load.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Regulation 8 (e).—To be revised to give freer scope to the utilization of interchanged stock. To read "wagons, horse-boxes and carriage trucks may, on the return journey, be diverted without penalty to short branches, aggregating to not more than 50 miles whether in one or more branches, with, or in order to secure, a load in the direction in which they are returning. In such cases, mileage shall be paid on the diverted distance run under load," in addition to any mileage due under 8 (c), provided that any railway shall have the right on giving one week's notice to suspend this regulation and require the direct return of its stock to the parent line.

For example:—

An Oudh and Rohilkhand railway wagon returning from Howrah to Moghalsarai or any other Oudh and Rohilkhand railway junction above Moghalsarai, may be diverted to Jheriah Coal-field (approximately 40 miles) to obtain a load to Moghalsarai or beyond or any East Indian railway station short of Moghalsarai or to any branch from such station of not more than 10 miles in length, so that the total diversion may not exceed 50 miles.

An East Indian railway wagon returning from Itarsi to Agra may be diverted by the Indian Midland railway to Saugor (45 miles), and be loaded to Agra *via* Agra or to any station short of Agra or any short branch, 5 miles in length, total diversion not exceeding 50 miles.

An East Indian railway wagon returning from Saharunpur *via* Moghalsarai may be diverted by the Oudh and Rohilkhand railway an aggregate distance of 50 miles on Oudh and Rohilkhand railway branches.

(iii) Regulation 9.—"Penalty for contravention of regulation 8."—Whether the amount of the penalty prescribed by this regulation should be reduced.

Regulation 9 now stands as follows:—

9 (a) Any railway which deals with a vehicle in contravention of Regulation 8 shall pay to the parent railway a penalty of fifteen rupees in the case of a standard gauge vehicle, and ten rupees in the case of a metre gauge vehicle, per day or part of a day from the time such vehicle was missent until it returns to a station on the route by which it should have been sent.

(b) Penalty-paying vehicles shall also be subject to ordinary mileage and demurrage charges.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

It is suggested that the incidence and the amount of the penalty be considered. In practice when a vehicle is returned by a wrong junction and is accepted there a lump sum penalty of Rs. 15 only is enforced irrespective of time. For an accidental missending involving a daily charge Rs. 15 per diem for a standard vehicle is apparently too high: Rs. 10 would, it is considered, be sufficient. It is proposed to alter the daily penalty for standard gauge vehicles from Rs. 15 to Rs. 10, and to add to the end of regulation 9 (a) as follows:—

"Provided that if the vehicle be tendered at a junction with the parent line other than that by which received on the outward journey, the vehicle shall be accepted and a lump sum penalty of Rs. 15 be payable."

- (iv) Regulation 10.—“Exemption from penalty.”—(a) Whether under this regulation wagons returning with loads booked to junction only with parent line, and made over to parent line without loads being transhipped, are exempted from payment of return mileage in the event of the wagons being moved with their original loads, at the request of the consignee, beyond the junction on the parent line; (b) desirability of introducing a definite ruling to regulate the re-booking of coaching vehicles beyond original destination.

Regulation 10 now stands as follows:—

If goods are required to be sent to a station beyond the original destination, the consignment may be sent on in the original wagon without penalty, subject to ordinary mileage and demurrage charges.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

The above is the authority for the re-booking of a goods vehicle beyond its original destination.

There does not, however, appear a distinct ruling as regards coaching vehicles.

Conference regulation 15 (a) provides for the time coaching vehicles shall be allowed free of demurrage. Considerable correspondence has passed between the Traffic office of this and other railways as to the interpretation to be put on these rules.

A summary of the case which gave rise to the discussion is noted below for information.

A North Western railway luggage van was loaded with the Commander-in-Chief's luggage *en route* from the Punjab to Calcutta *via* the Oudh and Rohilkhand railway. The luggage van was attached with his Excellency's carriage and arrived booked to a station on the Oudh and Rohilkhand railway. The vehicle was then re-booked from the original destination to other stations on the Oudh and Rohilkhand railway, and under each operation was re-booked under fresh tickets and vouchers.

The Oudh and Rohilkhand railway maintained that under operation of Conference rule 15 (a) the destination allowance of 24 hours extra could be claimed for each re-booked destination, while the parent line on the other hand contended that only one destination allowance is permissible.

The question was referred to two railways; one was of opinion that it is open to doubt whether there is any authority in the Conference regulation for the re-booking of a coaching vehicle, but that on vehicles so re-booked there should not be more than one destination allowance under regulation 15 (a).

The other held the view that under the circumstances the vehicle would be subject to penalty charges for wrong booking.

It might also be made clear whether the regulation can be made applicable to the case of wagons running with loads to the junction with parent line, i.e., if wagons so containing loads to the junction station only and placed at disposal of parent line under Conference rules without loads being transhipped, can line making over wagons claim exemption from payment of return mileage in the event of wagons being moved further down the parent line with their original loads at request of consignee. As an illustration, an Oudh and Rohilkhand railway wagon is booked on the outward journey from Bareilly to Lahore. At Lahore it is loaded on the return journey with Oudh and Rohilkhand railway materials booked to Saharanpur. At the latter station the wagon is taken over by the Oudh and Rohilkhand railway, its contents, however, are not transhipped; but the wagon is booked under fresh local invoice to Lucknow. Can the North Western railway under these circumstances claim exemption for payment of return mileage?

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Regulation 10.—It is proposed to make this rule clearer by revising the wording which it is suggested should run as follows:—

“If goods are required to be sent to a station beyond the original destination, the consignment may be sent on in the original wagons, mileage and demurrage charges being levied as if the consignment had been originally booked to its final destination. No penalties to be levied.”

- (v) Regulation 15 (a).—“Demurrage—Coaching vehicles.”—Whether coaching stock should be allowed any time, free of demurrage, for loading and unloading at intermediate stations; and, if so, how much?

Regulation 15 (a) now stands as follows:—

Standard gauge coaching vehicles shall be allowed free of demurrage one hour for every twelve and a half miles, and metre gauge coaching vehicles shall be allowed one hour for every eight miles run on foreign lines, and for both gauges twenty-four hours extra at destination.

NOTE BY THE TRAFFIC MANAGER, INDIAN MIDLAND RAILWAY.

(1) An East Indian railway horse box is received at Tundla loaded for Agra and Jhansi. It is detached at Agra Fort where the horse for that station is unloaded, and that for Jhansi sent on in the same box. The rules provide for 24 hours free of demurrage for the halt at Jhansi, but no allowance is given for that at Agra Fort.

(2) Twelve-hours might be calculated for loading or unloading coaching vehicles at intermediate stations, in the same way as allowed on goods stock.

- (vi) Regulation 16 (a).—“Demurrage—Goods vehicles.”—(a) Whether any allowance of time, free of demurrage, should be fixed for wagons received for back loading; (b) whether any free time should be given at original destination when a wagon is booked beyond the original destination at the request of sender or consignee; (c) whether any free time should be given in the case of wagons with cross traffic running over short leads; (d) whether any increase should be made in the running allowance now prescribed by this regulation.

Regulation 16 (a) now stands as follows:—

Goods vehicles shall be allowed free of demurrage one hour for every six miles in the case of standard gauge wagons, and one hour for every five miles in the case of metre gauge wagons, run on foreign lines, and thirty-six hours for unloading and twenty-four hours for re-loading at destination; also twelve hours at any intermediate station for each of these operations.

NOTE BY THE TRAFFIC MANAGER, INDIAN MIDLAND RAILWAY.

(1) An allowance of time free of demurrage when a wagon is received from one railway by another for back loading has not been fixed.

(2) It might be 36 hours, the same as for unloading at destination.

(3) This has been accepted by the Great Indian Peninsula, and East Indian railways in their accounts with the Indian Midland railway.

Extract from letter No. 2162, dated the 14th December 1892.

From—The Agent and Chief Engineer, Bengal-Nagpur railway,

To—The Secretary, Railway Conference.

I have the honour to propose for discussion at the next Railway Conference the following modification of rule * * 16 (a) of the Railway Conference of 1888:—

“Goods vehicles shall be allowed free of demurrage one hour for every six miles in the case of standard gauge wagons, and one hour for every five miles in the case of metre gauge wagons, run on foreign lines, and 24 hours for unloading and 36 hours for re-loading at destination back to owning line, and also 24 hours at any intermediate station for back loading.”

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Re-booking of foreign stock.—Conference regulations 10 and 16.—It is desirable to settle whether any free time should be allowed at original destination, in addition to the 36 hours for unloading and 24 hours for re-loading at final des-

tion, in cases where a wagon booked to the junction or to a station on a foreign line is re-booked to a station beyond at the request of the sender or consignee.

2. For example, an East Indian railway wagon booked from Howrah to Asansol or Chakardharpur is re-booked to Nagpur at the request of the sender or consignee is any free time to be given as destination allowance at Asansol or Chakardharpur?

3. The East Indian railway is inclined to the view that there should be no allowance in respect of the detention at original destination, and that if demurrage is found in consequence to accrue, the railways concerned should protect themselves by charging a re-booking fee. It is not likely, however, that demurrage will frequently become payable on wagons re-booked as the order to re-book must, if it is to be carried out, be received either before the arrival of the consignment or immediately afterwards, and in either of these cases, the wagons can be at once sent on to final destination. If the order is not promptly given, the wagons will be unloaded and returned in the ordinary course to parent line.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Additional free time to wagons containing cross traffic carried over short leads. Conference regulation, 16a.—In the case of short lead traffic the destination allowance frequently saves payments on account of demurrage, which would otherwise accrue. Wagons are necessarily kept waiting for train room, and the time so occupied cannot be made up from the running time. This is especially the case where the train service is restricted.

2. On wagons containing cross traffic there is no free allowance beyond the running time. A wagon from *via* Katni to *via* Jubbulpore has 10 hours for running over the East Indian railway in each direction. Other instances on the East Indian are between Manikpore and Katni and between Asansol and Naihati.

3. It is suggested that there be a waiting train allowance of 12 hours for the run in both directions in the case of wagons with cross traffic running between junctions less than 150 miles apart.

No. 224-M., dated 10th February 1893.

From—The Manager, North Western railway,
To—The Secretary, Railway Conference.

With reference to your letter No. 2, dated 17th ultimo, I have the honour to state that the only subject I have to propose is the consideration of Conference Regulation 16 (a). I am of opinion that additional time should be allowed free of demurrage to vehicles carrying cross traffic for short distances over a railway, a special or minimum allowance for such vehicles being fixed.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

The running allowance for goods vehicles might, with advantage to the parent line and with no corresponding inconvenience resulting therefrom to foreign lines, be increased from 6 to 12½ miles per hour.

2. With the present low rate of running allowance a parent line can be deprived of the use of its stock for a much longer time than is absolutely necessary without pecuniary loss to the line receiving such stock. In times of pressure such unnecessary loss of use of stock would be felt severely by the parent line.

(vii) Regulation 24 (a).—"Junction returns."—Desirability of modifying this regulation so as to conform to the procedure adopted in practice.

Regulation 24 (a) now stands as follows:—

In case a wagon, horse-box, or carriage truck is loaded on the homeward journey to any station short of the parent line, or in case of any alteration in the destination or route of a vehicle of any description caused by transshipment of the load or otherwise, the audit offices of the respective railways shall make a weekly return of the same to each other for the purpose of calculating mileage, demurrage, and penalty under these rules.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Regulation 24 (a).—It is suggested to excise after "make" in 5th line, and insert the following:—

"Full explanatory remarks in the interchange statements against the entry of such vehicle and credit without delay, the mileage and demurrage that may be due."

In practice, a suitable remark is always made in the mileage statement and separate returns are not exchanged.

(viii) Regulation 25.—"Limitation of claims."—Whether this regulation applies to original claims only, or whether it is also applicable to claims for adjustments of previous accounts.

Regulation 25 now stands as follows:—

No claim for mileage, demurrage, rebate, extra allowance, or penalty shall be preferred after a lapse of six months from the date on which a vehicle returns to the parent line.

NOTE BY THE CHIEF AUDITOR, INDIAN MIDLAND RAILWAY.

Rule 25 of the Conference of 1883 provides that no claim for mileage, demurrage, rebate, extra allowance, or penalty shall be preferred after a lapse of six months from the date on which a vehicle returns to the parent line, but different opinions exist as to whether the rule applies to original claims only, or whether it is also applicable to claims for adjustments of previous accounts.

As the rule was framed, apparently to obviate the necessity of searching old records to trace the movements of stock, there seems no reason why the rule should not apply absolutely to all claims, original or otherwise, and the rule should be made clear.

(ix) Regulation 28 and Regulation 30 (b).—"Routes and junctions."—Whether (a) it should be expressly stipulated that parcels traffic be booked by the shortest route; and (b) the desirability of incorporating regulation 30 (b) with regulation 28.

Regulations 28 and 30 (b) now stand as follows:—

• *Regulation 28.*—In the absence of specific instructions on the part of the consignor, all traffic shall be booked, invoiced, and sent by the shortest route, provided it be the cheapest.

Regulation 30 (b).—Any railway having entire command of a route between the despatching and receiving stations, may send the traffic by its own route; provided that the charge to the public does not exceed that of the route laid down in regulation 28.

NOTE BY THE TRAFFIC MANAGER, INDIAN MIDLAND RAILWAY.

This rule is included under a general section for through traffic regulations, but the word "invoiced" is used, and that term is particularly applicable to goods traffic.

2. It is suggested that it be expressly stipulated that *parcels* should be forwarded by the shortest route, as the public pay the extra cost of conveyance for quick transit, and are entitled to the advantage of the most direct route, although the charge by a longer route might be the same according to the table of rates for parcels, which makes no difference for distances from, for example, 750 to 1,000 miles.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Regulation 28.—Regulation 30 (b) to be added as a second proviso. Regulation 28 would then read as follows:—

"In the absence of specific instructions on the part of the consignor, all traffic shall be booked, invoiced and sent by the shortest route, provided it be the cheapest; provided also that any railway having entire command of a route between the despatching and receiving stations, may send the traffic by its own route provided that the charge to the public does not exceed that of the cheapest route."

(x) Regulation 29.—“Routes and junctions.”—Whether the minimum rate, under this regulation, should be fixed between the junctions only, or between points beyond or short of the junctions.

Regulation 29 now stands as follows:—

The minimum rate between junctions shall be fixed by the railway or railways owning the shorter route.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

There has apparently been a diversity of opinion under this rule, viz., whether the shorter route in all cases fixes the charge, whether the traffic is between two points either beyond or short of the junction, or the junction itself.

The following will serve as an illustration of the several cases.

Between Lucknow and Bareilly there are two routes:—

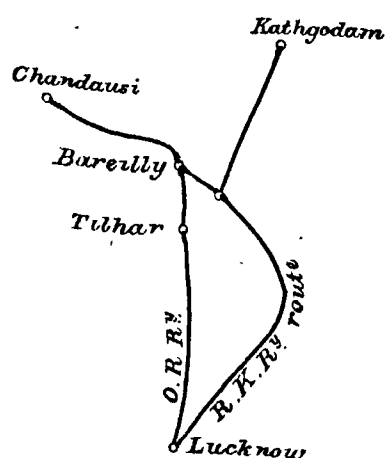
(a) *Via* Oudh and Rohilkhand railway, 146 miles.

(b) *Via* Rohilkhand-Kumaun railway, 199 miles.

Does the rate between Bareilly and Lucknow *via* the Oudh and Rohilkhand railway fix the rate between Lucknow and Bareilly only, or between say Lucknow and Chandausi, which is 44 miles beyond Bareilly on the Oudh and Rohilkhand railway by both routes, or between Lucknow and Tilhar, which is 32 miles on the Lucknow side and to which there are two routes—one direct *via* Oudh and Rohilkhand railway, 114 miles, and one *via* Bareilly and Rohilkhand-Kumaun railway, 231 miles.

This question should, I think, be made clear. If the English practice is to be followed, I understand in the case quoted *via* Lucknow and Bareilly, the charge *via* Rohilkhand-Kumaun railway, Lucknow to Bareilly would be fixed by the Oudh and Rohilkhand railway charge Lucknow to Bareilly, but this would not govern any point beyond or short of the junction, so that to all stations short of Bareilly on the Rohilkhand-Kumaun railway side the route for Lucknow would be cheaper *via* the Rohilkhand-Kumaun railway, and all stations short of Bareilly on the Oudh and Rohilkhand railway side the rate *via* Oudh and Rohilkhand railway would be the cheaper.

The following sketch gives the position:—



An authoritative ruling on the point is, I think, required. At present there are railways claiming equalization to points even not on their system under this rule. This I do not think was the intention.

(xi) Regulation 34 (b).—“Freight on articles lost, damaged, or unclaimed.”—Desirability of modifying this regulation in order to prevent undue advantage being taken of it as it stands.

Regulation 34 (b) now stands as follows:—

Freight on goods and parcels left on hand unclaimed shall be charged against the goods or parcels as the case may be, the railway on which they were left taking the articles and keeping the value thereof; and if the value is less than the amount of the freight, the balance shall be charged against the compensation account of the railway on which the goods or parcels were left.

No. F. ²⁷⁹/₂₀₂, dated the 17th January 1893.

From—The Traffic Superintendent, Eastern Bengal state railway,
To—The Manager, Eastern Bengal state railway.

I would suggest a slight amplification of the above rule, in order to prevent undue advantage being taken of it as it stands.

(2) At present a receiving railway, which is unable to deliver a parcel, may re consign it with all dues “to pay,” and the railway to which the parcel is re consigned becomes liable to all the other railways concerned for freight and demurrage charges which have accrued.

(3) Rule 34 (b) should apply only in the case where a parcel is unclaimed or undelivered at the original receiving station, or when it is returned to the original despatching station at the request of the sender made through the forwarding railway.

(4) Consignees’ instructions for reconsignment should only be accepted subject to conditions (1) that the railway receipt is produced and given up; and (2) that all charges including freight on re-booking are paid.

(xii) Regulation 42 (a) and (b).—“Handling of passengers’ luggage.”—Whether this regulation should be rescinded and the previous practice, under which coolies were not employed by railways, reverted to.

Regulation 42 (a) and (b) now stands as follows:—

42 (a).—At the larger stations on all railways, no charge shall be made for conveying passengers’ luggage between the station entrance and the trains, the railways performing the service by means of their own staff.

42 (b).—At junctions and regular ferries, where luggage belonging to passengers holding through tickets has to be transhipped from one train to another, or from train to steamer, or from steamer to train, the railways concerned shall tranship luggage free of charge.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

This ruling has not, I understand, been universally adopted.

It has, however, been given a fair trial on the two largest stations on this system since the 1st October 1890. The result has not been satisfactory, as

1st and 2nd class passengers, for whose convenience the system was principally adopted, are not now, I think, so well served as they were before. The paid coolies in actual practice wilfully avoid such passengers as they think will not pay them and crowd after others who they think will.

Every endeavour is made to keep the coolies as much to their work as is possible, but there have been found great difficulties in this.

Under the old system passengers of all classes were served alike and better attended to than they are at present.

The coolies being monthly servants of the railway are sure of their wages whether they exert themselves or not. While previously all the coolies had to depend on the payment from passengers, and naturally were always on the alert to help passengers with their luggage.

The arrangement is very expensive, and as nothing is gained in the way of convenience to the travelling public, I think the rule should be rescinded and the practice prevailing in England and hitherto in India reintroduced.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

It is believed that this regulation is not being worked to generally.

The Bombay, Baroda and Central India railway and the North Western railway have not introduced the arrangement for free handling.

The Oudh and Rohilkhand railway and the Eastern Bengal state railway introduced the arrangement, but, it is understood, have withdrawn it as unsatisfactory.

It is questionable whether the convenience and economy to passengers, if "free" handling is introduced, will be in proportion to the extra expenditure by the railway. It is certain that coolies will expect gratuities that many passengers will be prepared and anxious to pay to obtain preference, and that those who decline to pay will stand a poor chance of having their work done well. It is the known endeavour of porters on English railways at terminal stations to handle the luggage of those who from their appearance are likely to give "tips".

As regards sub-paragraph (b) of the regulation, all transhipment of booked luggage is free. Passengers are requested to take with them into their compartments only the small articles of luggage, a hand bag, tiffin basket, and bundle of rugs, which they may require on their journey, and if everything else is put in the brake-van there will be nominal trouble and expense changing at the junction. Passengers who take with them their trunks and portmanteaux cause inconvenience to their fellow passengers, and it is right that they should as a consequence of their action suffer some inconvenience.

It is suggested that regulation 42 of the Conference of 1888 be reconsidered.

(xiii) Regulation 43.—"Receipt notes."—Whether, in addition to the information prescribed by this regulation, all railways should enter on goods receipt notes the "Code marks" which the consignments bear.

Regulations 46 now stands as follows:—

Goods receipt-notes given to consignors shall include the following information:—

i.—The consecutive number of the receipt-note.

ii.—The date on which the goods are received and receipt-note issued.

iii.—The sender's name.

iv.—The name of the despatching station.

v.—The consignee's name.

vi.—The name of the station of destination.

vii.—The number of articles.

viii.—Description of the articles.

ix.—The weight of the articles.

x.—The rate.

xi.—The freight on the articles.

xii.—Whether freight is "paid" or "to pay."

xiii.—Conditions of carriage.

xiv.—The signature in full of Station Master or clerk who issues the receipt-note.

} These separately for each railway.

NOTE BY THE AGENT AND MANAGER, MADRAS RAILWAY.

Code marks on goods to be entered in the goods receipt-notes.

At the suggestion of Messrs. Shepherd & Co., Agents for the British India Steam Navigation Company, Bombay, the Madras railway have recently arranged for Code marks of goods to be entered on the goods receipt-notes; as the system is found to form a check on the correct delivery of consignments, it is suggested that all railways should adopt it and that the words "Code marks" be added to Rule 46 of the Conference of 1888.

(xiv) Regulation 51 (a) and (b).—"Specie."—How are fractions of a maund of specie to be determined under this regulation?

Regulation 51 (a) and (b) now stands as follows:—

51 (a).—Treasure, including specie, bullion, gold and silver coin, jewellery, trinkets, plate, &c., shall be carried at the following rates, viz.:—

	Pics per maund per mile.
Up to 27 maunds	2½
Above 27 and up to 81 maunds	2
" 81 " " 270 "	1½
Over 270 maunds	1 pie.

provided that the charge for any quantity shall not be less than that for a smaller quantity according to above scale.

Escort:—

(i) One man is allowed to travel free, both on the outward and return journey, as a third class passenger when the consignments of treasure are over 54 and under 135 maunds.

(ii) Two men when consignments are from 135 to under 270 maunds.

(iii) Four men with consignments of 270 maunds and over.

(iv) When a consignment amounts to 20 lakhs of rupees or more (625 maunds or more), a guard of four men is allowed with return passage free of extra charge; and—

51 (b). Copper coin by passenger train in quantities of five maunds and under shall be carried at the rate of two pies per maund per mile; in quantities over five maunds, at one pie per maund per mile, subject to a minimum charge as for ten maunds.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

The above does not provide as to how fractions of a maund are to be charged. The practice, I understand, is that fractions of a maund of treasure is calculated as for parcels and luggage.

The same view is applied to 51 (b).

This should be made clear in the rule.

(xv) Regulation 58 (a).—"Parcels and passengers' luggage."—Whether, in determining freight charges under this regulation, every parcel should be both weighed and measured.

Regulation 58 (a) now stands as follows:—

58 (a).—Parcels shall be charged by either weight or measurement, whichever gives the greater charge, two cubic feet being considered equal to ten seers in weight.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

It is understood that this was prescribed simply as a guide for the staff as to the manner of charging for parcels, and not for audit purposes as it could not have been intended that every parcel tendered for despatch should be both weighed and measured, and the results of both operations recorded on parcel way bills.

It apparently was intended for certain traffic, such for instance as cages of birds, which generally give a higher freight by measurement than by weight.

The ruling should be made clear on the points.

(xvi) Regulation 58 (d).—"Parcels and passengers' luggage."—Desirability of introducing a rule to provide that when the distance a parcel of over 10 seers in weight, has to be carried exceeds by 25 or 50 miles only the distances for which rates are shown in the rate list, the rate for the extra 25 or 50 miles, as the case may be, is to be added to the rate for the next lower distance.

Regulation 58 (d) now stands as follows:—

Parcels exceeding one cubic foot in contents or five seers in weight shall be charged at the rate shown in the following table:—

Rate list for luggage and parcels.

DISTANCES IN MILES.				Not exceeding 10 seers.	Exceeding 10 seers but not exceeding 20 seers.	Exceeding 20 seers but not exceeding 30 seers.	Exceeding 30 seers but not exceeding 40 seers.	Additional charge for fractions in excess of even maunds.
				Rs. A. P.	Rs. A. P.	Rs. A. P.	Rs. A. P.	
Not exceeding	25	...		0 4 0	0 4 0	0 4 0	0 4 0	
Exceeding	25, but not exceeding	50	...	0 4 0	0 4 0	0 8 0	0 8 0	
"	50 "	100	...	0 4 0	0 8 0	0 12 0	1 0 0	
"	100 "	150	...	0 8 0	0 12 0	1 0 0	1 8 0	
"	150 "	300	...	0 8 0	1 0 0	1 8 0	2 0 0	
"	300 "	450	...	0 12 0	1 8 0	2 4 0	3 0 0	
"	450 "	600	...	1 0 0	2 0 0	3 0 0	4 0 0	
"	600 "	750	...	1 4 0	2 8 0	3 12 0	5 0 0	
"	750 "	1,000	...	1 8 0	3 0 0	4 8 0	6 0 0	
"	1,000 "	1,166	...	1 12 0	3 8 0	5 4 0	7 0 0	
"	1,166 "	1,333	...	2 0 0	4 0 0	6 0 0	8 0 0	
"	1,333 "	1,500	...	2 4 0	4 8 0	6 12 0	9 0 0	
"	1,500 "	1,666	...	2 8 0	5 0 0	7 8 0	10 0 0	
"	1,666 "	1,833	...	2 12 0	5 8 0	8 4 0	11 0 0	
"	1,833 "	2,000	...	3 0 0	6 0 0	9 0 0	12 0 0	
"	2,000 "	2,166	...	3 4 0	6 8 0	9 12 0	13 0 0	
"	2,166 "	2,333	...	3 8 0	7 0 0	10 8 0	14 0 0	
"	2,333 "	2,500	...	3 12 0	7 8 0	11 4 0	15 0 0	
"	2,500 "	2,666	...	4 0 0	8 0 0	12 0 0	16 0 0	
"	2,666 "	2,833	...	4 4 0	8 8 0	12 12 0	17 0 0	
"	2,833 "	3,000	...	4 8 0	9 0 0	13 8 0	18 0 0	
For each additional 167 or part of 167 miles, beyond 3,000 miles				0 4 0	0 8 0	0 12 0	1 0 0	

The amounts entered in the respective columns.

No. 190 R.T., dated the 19th April 1893.

From—The Assistant Secretary to the Government of India, Public Works Department,
To—The Secretary, Railway Conference.

The undermentioned papers are forwarded to the Secretary to the Railway Conference for favour of necessary action.

Documents referred to.

1. Copy of letter No. 108 T., dated 27th March 1893, from the Director General of Railways in regard to modifications suggested by the Manager, North Western railway, of the present parcel rates for through booking.
2. Copy of Manager, North Western railway's No. 186 D. G. R., dated 24th February 1893, and of enclosures.

No. 108 T., dated the 27th March 1893.

From—The Director General of Railways,

To—The Secretary to the Government of India, Public Works Department.

The following is forwarded to the Secretary to the Government of India, Public Works Department, for information.

No. 107 T., dated the 27th March 1893.

From—The Director General of Railways,

To—The Manager, North Western railway.

I have the honour to acknowledge the receipt of your letter No. 186 D. G. R., dated the 24th February 1893, and enclosures, requesting, for the reasons stated, a modification of the present parcels rates in local booking and suggesting that the question of adopting the proposed rule in through booking may be discussed at the next Railway Conference.

2. In reply I have to sanction the modification that you propose in the present parcels rates to have effect from 1st April 1893, and to apply to local booking only, and to state that the desirability of adopting the same modification in through booking will be discussed at the next Railway Conference.

No. 186 D. G. R., dated the 24th February 1893.

From—The Manager, North Western railway,

To—The Director General of Railways.

I have the honour to forward copy of correspondence noted in the margin from the Traffic Superintendent of this railway bringing to notice certain instances in which freight can be saved by consignors of packages sent by rail at the parcel and half-parcel rates by adopting a process of re-booking, i. e., if the distance a parcel has to travel only exceeds the minimum distance for charge, by either 25 or 50 miles as the case may be, consignors can, when parcels exceed 10 seers in weight, save freight by first booking them 25 or 50 miles short, and then re-booking to destination.

2. In order to meet such cases all that appears necessary is to make a rule for consignments at parcels and half-parcels rates, that when the distance the parcel has to be carried exceeds the minimum distance for charge by not more than 25 miles, or by not more than 50 miles, as described above, the rate for 25 or 50 miles as the case may be, should be added to the rate for the next lower distance. Thus for a parcel of one maund to be carried 624 miles the rate to be charged, instead of Rs. 5 would be the rate for 600 miles, i. e., Rs. 4 plus the rate for 25 miles, i. e., As. 4 or Rs. 4-4 instead of Rs. 5. This as far as I can see would cover every possible case of re-booking and be at the same time a very

simple rule; and I have accordingly instructed the Traffic Superintendent of this railway, to adopt the same in local booking with effect from the 1st April 1893.

3. As however the Examiner of Accounts of this railway points* out that the sanction of Government seems necessary to the modification of the present parcels rates, which the adoption of the above rule will involve, I have the honour to request that the same may if necessary be applied for. I have also to suggest that the desirability of adopting this rule in through booking may be discussed at the next Railway Conference.

* Vide paragraph 2 of Examiner of Accounts' note attached to the Traffic Superintendent's letter of August 1892.

No. 2675, dated the 26th August 1892.

From—The Traffic Superintendent, North Western railway.

To—The Manager, North Western railway.

I have the honour to inform you that the rate for parcels of fresh fruit, from Saharanpur to Jeypur is Rs. 1-8 per maund, and from Nagal to Jeypur Re. 1, and the rate from Saharanpur to Nagal being annas 2 per maund only. The merchants to save annas 6 per maund in the transaction book their packages in the first place from Saharanpur to Nagal and re-book from there to Jeypur. Sometimes they send their parcels by road to Nagal.

2. This is one instance of the kind such re-booking is possible in many other cases owing to the parcels and half-parcels rates being reckoned on the grouping system.

3. The matter was referred to the Examiner for his opinion, as to whether we could quote a combined rate of Rs. 1-2 per maund from Saharanpur to Jeypur, and I enclose for your information a copy of his reply, wherein he has raised a question regarding our powers to alter these rates.

4. I think that the system of combined rates illustrated above, if applied in all such cases will prevent re-booking and packages being carried by road, and shall be glad if you will please accord your sanction to the same.

5. On hearing from you that you approve of the proposal, I will address the Bombay, Baroda and Central India railway, regarding division of the combined rate from Saharanpur to Jeypur.

P. S.—What is I think necessary is to obtain Director General of Railways' general sanction to the adoption of the combined rule at our own discretion in cases in which the application of the parcels rates will lead to re-booking to very great extent.

It would not be worth while to apply it in the case of ordinary parcels booked, for instance, by European shop-keepers, but we ought to be able to apply it in cases in which there is a regular trade (say fresh fruits) booked at parcels rates; such traffic is sure to be re-booked sooner or later if any saving of freight can be thus secured; by charging the combined rates re-booking would be prevented or the cost of transport decreased. On re-booked parcels we have the extra work of preparing fresh way bills or unloading.

No. 513, dated the 26th July 1892.

From—The Examiner of Accounts, North Western railway,

To—The Traffic Superintendent, North Western railway.

The reason for this appears to be that the rate for a maund parcel for 25 miles is the same as for a parcel of 10 seers, whereas for distance over 100 miles the rates for 10, 20, 30 and 40 seers parcels are increased $\frac{100}{10 \cdot 20}$ per cent. and $\frac{50}{30 \cdot 40}$ per cent.

It is probable, advantage is taken of this in many other cases.

2. In the schedule of maximum and minimum rates approved by Government, only parcels rates are quoted, but in the Conference Rules which it apparently was intended should be followed half-parcels rates are provided for, and it seems doubtful whether we could modify our rates without sanction of Government.

3. It would only meet one case to have a through rate of Rs. 1-2-0 from Saharanpur to Jeypur, and it would perhaps be well to find out before doing anything to what extent a similar practice is adopted at other stations.

No. 498, dated the 10th February 1893.

From—The Traffic Superintendent, North Western railway,

To—The Manager, North Western railway.

In returning the papers received with your endorsement of the 8th September last, I have the honour to enclose a statement * of instances in which money can be saved by re-booking parcels and half-parcels.

From confidential enquiries made, I learn that no cases have occurred in which this was actually done, excepting in the case of packages booked at half-parcels rates from Peshawar to Amritsar which were booked to Attari in the first place and thence re-booked to Amritsar. The case already reported is another instance of re-booking.

(xvii) Regulation 58 (g).—"Heavy or bulky parcels."—The desirability of discouraging the booking by mail and passenger trains of parcels exceeding 40 seers in weight.

Regulation 58 (g) now stands as follows:—

Parcels exceeding forty seers in weight or 8 cubic feet in measurement shall be booked only if accommodation will allow.

No. 7503/4431, dated the 3rd June 1893.

From—The Agent and Manager of the Madras railway,

To—The Secretary, Railway Conference.

I wish to call the attention of the Conference to the rate for parcels carried by passenger train, exceeding 40 seers in weight.

2. In the Conference Regulation 58 (paragraph (g) at page 22 of the Conference rules), it is stated that such parcels shall only be booked if accommodation will allow, but as a matter of fact, heavy parcels are now very frequently received on this railway from foreign stations.

3. In many cases it is found that the difference in the charge between the rates by goods train and the rates by passenger train is so small that inducement is held out to traders to consign their heavy parcels by passenger train, and other railways may, perhaps, have noticed the fact that heavy parcels by passenger train have a tendency to increase in number.

4. The passenger staff at small stations is very limited, and heavy parcels, consequently, cause detention to mail and passenger trains; and their carriage by these trains should not therefore be encouraged.

* Vide appendix A to this question.

(xviii) Regulation 63.—"Surplus stores."—Desirability of cancelling this regulation, special conditions and rates for carriage of railway stores having since issued.

Regulation 63 now stands as follows:—

All surplus stores sold by one railway to another, and carried over railways other than the selling or purchasing railway, shall be charged at a uniform rate of one-eighth of a pie per maund per mile, subject to a minimum charge of eighty-one maunds per truck used, if the stores are such as to require a whole truck.

NOTE BY THE AGENT, EAST INDIAN RAILWAY.

Regulation 63.—It is suggested that this be struck out, special rates and conditions for the carriage of all railway stores having since been issued.

(xix) Regulation 64 (a).—"Insurance of goods and parcels."—Whether, in order to facilitate computation, the declared value if less than Rs. 49, should not be dropped, and from Rs. 50 up to Rs. 100 charged for as Rs. 100, and so on; or, as an alternative, whether insurers should not be required to declare value in hundreds of rupees.

Regulation 64 (a) now stands as follows:—

The rates for insurance of goods, parcels, &c., shall be as follows:—

Articles.	Rates of insurance per cent. in rupees on declared value.
On art pottery and all articles made of glass, China or marble.	Four annas per 100 miles or fraction of 100 miles.
Gold, silver, and all other excepted articles.	Two annas per 100 miles or fraction of 100 miles.

Subject to a maximum of one per cent.

No. F. 236/60, dated Calcutta, the 15th February 1893.

From—The Traffic Superintendent, Eastern Bengal state railway,

To—The Manager, Eastern Bengal state railway.

According to rule, insurance charge is calculated on the actual value of the article insured, but, for facilitating computation, it would be as well either to adopt the procedure that any amount up to Rs. 49 should be dropped, and from Rs. 50 upwards charged as for Rs. 100, or that insurers be asked to declare value in hundreds of rupees. I would suggest that this matter be sent up for discussion at the next Railway Conference.

APPENDIX A. TO QUESTION NO. 12 A.

Statement of instances in which money can be saved by re-booking parcels and half-parcels.

Miles.	IN THE FIRST INSTANCE.						RE-BOOKING.								BOOKED THROUGH.						Difference per maund at full parcel rates.		Difference per maund at half-parcel rates.			
	Station from		Station to		Rate per maund.		Miles.	Station from		Station to		Rate per maund.	Total rate per maund from starting point to destination.	Miles.	Station from		Station to		Rate per maund.							
				Rs.	As.						Rs.	As.	Rs.	As.					Rs.	As.	Rs.	As.	Rs.	As.		
24	Lahore	...	Khasa	...	...	4	284	Khasa	...	Meerut city	...	2	...	2	4	308	Lahore	...	Meerut city	...	3	...	12	...	6	
24	Ditto	...	Ditto	...	...	4	286	Ditto	...	Delhi	...	2	...	2	4	310	Ditto	...	Delhi	...	3	...	12	...	6	
100	Bhakkar	...	Mahmudkot	...	1	...	11	Mahmudkot	...	Ghazighât	...	...	4	1	4	110	Bhakkar	...	Ghazighât	...	1	8	...	4	...	2
292	Lahore	...	Durya Khan	...	2	..	12	Durya Khan	...	Bhak'tar	...	...	4	2	4	303	Lahore	...	Bhakkar	...	3	...	12	...	6	
299	Multan city	...	Ruk	...	2	...	11	Ruk	...	Shikarpur	...	...	4	2	4	310	Multan city	...	Shikarpur	...	3	...	12	...	6	
91	Sukkur	...	Sita road	...	1	...	13	Sita road	...	Phulji	...	...	4	1	4	104	Sukkur	...	Phulji	...	1	8	...	4	...	2
4	Ditto	...	Rohri	...	...	4	50	Rohri	...	Mirpur	...	...	8	...	12	54	Ditto	...	Mirpur	...	1	...	4	...	2	
276	Peshawar city	...	Lahore	..	2	...	33	Lahore	...	Amritsar	...	...	8	2	8	308	Peshawar	...	Amritsar	...	3	...	8	...	4	
292	Ditto	...	Attari	...	2	...	16	Attari	...	Ditto	...	...	4	2	4	308	Ditto	...	Ditto	...	3	...	12	...	6	
94	Ditto	...	Golra	...	1	...	9	Golra	...	Rawalpindi	..	...	4	1	4	102	Ditto	...	Rawalpindi	...	1	8	...	4	...	2
132	Rawalpindi	...	Gujranwala	...	1	8	42	Gujranwala	...	Lahore	...	...	4	1	12	174	Rawalpindi	...	Lahore	...	2	...	4	...	2	
34	Kurrachee	...	Dabheje	...	...	8	19	Dabheje	...	Jungshai	..	...	4	0	12	53	Kurrachee	...	Jungshai	...	1	...	4	...	2	
97	Ditto	...	Bholari	...	1	..	10	Bholari	...	Kotri	...	...	4	1	4	107	Ditto	...	Kotri	...	1	8	...	4	...	2
281	Ditto	...	Larkana	...	2	...	22	Larkana	...	Madeje	...	...	4	2	4	302	Ditto	...	Madeje	...	3	...	12	...	6	
293	Ditto	...	Naundero	...	2	...	9	Naundero	...	Ditto	...	...	4	2	4	302	Ditto	...	Ditto	...	3	...	12	...	6	
281	Ditto	...	Larkana	...	2	...	34	Larkana	...	Ruk	...	...	8	2	8	314	Ditto	...	Ruk	...	3	...	8	...	4	
293	Ditto	...	Naundero	...	2	...	22	Naundero	...	Ditto	...	...	4	2	4	314	Ditto	...	Ditto	...	3	...	12	...	6	
273	Ditto	...	Bakrani	...	2	...	49	Bakrani	...	Bagarji	...	...	8	2	8	321	Ditto	...	Bagarji	...	3	...	8	...	4	
281	Ditto	...	Larkana	...	2	...	41	Larkana	...	Ditto	...	...	8	2	8	321	Ditto	...	Ditto	...	3	...	8	...	4	
293	Ditto	...	Naund.ro	...	2	...	29	Naundero	...	Ditto	...	...	8	2	8	321	Ditto	...	Ditto	...	3	...	8	...	4	
281	Ditto	...	Larkana	...	2	...	49	Larkana	...	Sukkur	...	...	8	2	8	329	Ditto	...	Sukkur	...	3	...	8	...	4	
293	Ditto	...	Naundero	...	2	...	37	Naundero	...	Ditto	...	...	8	2	8	329	Ditto	...	Ditto	...	3	...	8	...	4	
293	Ditto	...	Ditto	...	2	...	40	Ditto	...	Rohri	...	...	8	2	8	333	Ditto	...	Rohri	...	3	...	8	...	4	
587	Ditto	...	Shujabad	...	4	...	14	Shujabad	...	Shershah	...	...	4	4	4	601	Ditto	...	Shershah	...	5	...	12	...	6	
587	Ditto	...	Ditto	...	4	...	25	Ditto	...	Multan cantonment	...	...	4	4	4	612	Ditto	...	Multan cantonment	...	5	...	12	...	6	
587	Ditto	...	Ditto	...	4	...	26	Ditto	...	Ditto City	...	...	8	4	8	613	Ditto	...	Ditto city	...	5	...	8	...	4	
750	Ditto	...	Sat Ghara	...	5	...	18	Sat Ghara	...	Paltoki	...	...	4	5	4	768	Ditto	...	Paltoki	...	6	...	12	...	6	
750	Ditto	...	Ditto	...	5	...	44	Ditto	...	Raiwind	...	...	8	5	8	794	Ditto	...	Raiwind	...	6	...	8	...	4	
989	Ditto	...	Rajpura	...	6	...	16	Rajpura	...	Patiala	...	...	4	6	4	1,005	Ditto	...	Patiala	...	7	...	12	...	6	
996	Ditto	...	Sambhu	...	6	...	11	Sambhu	...	Umballa cantonment	...	...	4	6	4	1,007	Ditto	...	Umballa cantonment	...	7	...	12	...	6	
996	Ditto	...	Ditto	...	6	...	43	Ditto	...	Jagadhri	...	...	8	6	8	1,038	Ditto	...	Jagadhri	...	7	...	8	...	4	
993	Ditto	...	Rawalpindi	...	6	...	29	Rawalpindi	...	Hasanabdal	...	...	8	6	8	1,022	Ditto	...	Hasanabdal	...	7	...	8	...	4	

METHOD OF CALCULATING THE CHARGES FOR THE USE OF
ROLLING-STOCK.

ISSUES.

Regulation No. 17 of the Railway Conference of 1888 reads as follows:—

17. Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and when incurred shall be paid by the line on which it was incurred to the line to which the vehicles are handed over, and the demurrage payment so received shall be paid over at the next junction to the next railway, less a rebate of demurrage based on the time saved through expeditious working, or increased by any further additional demurrage incurred through slow working, and so on, in succession at each junction till return to the parent line.

This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.

The method prescribed by this regulation for the calculation of demurrage charges is generally considered to be unsatisfactory, and several proposals have been put forward for modifying the present regulation. The correspondence on the subject has so far resulted in several railway administrations having agreed* to accept, tentatively, the following revised rule:—

"Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and, when incurred, shall be paid by the line on which it was incurred to the parent line.

"This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.

"When, however, a railway has incurred or paid demurrage on a vehicle on its outward journey, such railway shall be entitled to set off against such liability or payment any time it may save in returning such vehicle to the parent line, whether it be returned by the same or a new route."

Certain railway administrations have, however, suggested† that in considering the revision of regulation No. 17 the opportunity should be taken to reconsider all the existing regulations relating to the method of calculating the charges for the use of rolling-stock.

It is now for consideration—

- (1) Whether the foregoing revised rule should be generally adopted; or
- (2) Whether the present regulations relating to the method of calculating mileage, demurrage and penalty charges should be reconsidered with a view to the introduction of revised regulations to provide that the charges for the use of rolling-stock shall be determined on a time basis.

No. 278, dated the 10th March 1890.

From—The Secretary, Railway Conference,

To—The Agent, South Indian railway,

The Agents and Chief Engineers, Southern Maharatta, Bengal and North Western, Rohilkund and Kumaon, Indian Midland, and Bengal-Nagpur railways,

The Agents and Managers, Madras railway, and His Highness the Nizam's Guaranteed state railway,

The Director, North Western railway,

The Manager, Eastern Bengal state railway,

The Manager and Engineer-in-Chief, Bhavnagar-Gondal-Junagarh-Porbandar railway.

I am directed to forward a copy of the correspondence noted below, relative to the unsatisfactory operation of revised Conference Regulation No. 17, regarding the method of calculating demurrage charges, and to request the favour of an expression of your opinion thereon.

* Vide synopsis of opinions on page 51, *infra*.

† Vide correspondence on pages 33 to 36, 43 to 49, and 53 to 55, *infra*.

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*contd.*

Documents accompanying.

- Copy of letter No. 582, dated the 21st of January 1890, from the Chief Auditor, East Indian railway, to the Agent, East Indian railway.
Copy of letter No. 4266, dated the 10th of June 1889, from the Chief Auditor, East Indian railway, to the Assistant Auditor, East Indian railway, Jamalpur.
Copy of letter No. 2854 G., dated the 19th of June 1889, from the Assistant Auditor, East Indian railway, Jamalpur, to the Traffic Manager, East Indian railway.
Copy of letter No. 5144 A., dated the 1st of July 1889, from the Deputy Traffic Manager, East Indian railway, to the Assistant Auditor, East Indian railway, Jamalpur.
Copy of letter No. 5152, dated the 12th of July 1889, from the Chief Auditor, East Indian railway, to the Auditors, Great Indian Peninsula, and Bombay, Baroda and Central India railways.
Copy of letter No. G. 9230, dated the 4th of September 1889, from the General Traffic Manager, Bombay, Baroda and Central India railway, to the Chief Auditor and Accountant, Bombay, Baroda and Central India railway.
Copy of letter No. G. F. 51-233, dated the 25th of November 1889, from the Auditor, Great Indian Peninsula railway, to the Chief Auditor, East Indian railway, with enclosures.

No. 582, dated the 21st of January 1890.
From—The Chief Auditor, East Indian railway,
To—The Agent, East Indian railway.

*Railway Conference of 1888. Method of calculating demurrage charges:—
Regulation No. 17.*

I beg to forward, for favour of consideration and such action as you may deem advisable, the correspondence noted in the margin, regarding the working of the above regulation.

2. In the great bulk of cases that will arise in actual working, vehicles will of necessity be returned by the same route by which they will be received; the cases of return by a different route will probably be few and far between. Applied to the former, it will be seen from the correspondence that the regulation gives inaccurate and unsatisfactory results, *viz.*, it will be seen that, though vehicles may be absent from the parent line for precisely similar periods of time, the demurrage due may vary considerably, *e.g.*, by merely transposing the figures on the B and E railway in the example, the demurrage due is reduced from 5 to 2 days; also that terminal lines can balance gains and losses, while whether intermediate lines can make up for time lost in running one way by quick running in the other, will depend on the running on other lines over which they have no control—a result that would appear to defeat the object the regulation was supposed to secure, *viz.*, the quick running of vehicles.

3. Besides producing these results, the regulation, if applied generally, will increase work in audit offices, and probably necessitate extra staff there.

4. With reference to the explanation of the regulation given by the General Traffic Manager, Great Indian Peninsula railway, I would observe that this appears to be directly opposed to the regulation. The regulation does not, in my opinion, provide for payment being made for time gained, as Mr. Conder would appear to understand. It apparently merely allows that when a vehicle is handed over behind time any time gained by the owning line may be deducted. Under Mr. Conder's interpretation, the parent line would have to pay for the early return of its own vehicles—a result that was probably not contemplated; indeed, this would change altogether the character of the charge.

5. I would now beg to recommend that Resolution No. 24 of the Conference be allowed to stand as originally passed. This brought the rule for dealing with demurrage charges to the same position as it was in before the change made in it by the Conference of 1882, and which is now cancelled. Under this

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*contd.*

Resolution each railway would only deal with the adjoining line; it would not be concerned in the manner stock was run on lines beyond, and demurrage would be calculated according to the time vehicles were absent from junctions.

6. This certainly seems to me the arrangement best calculated to secure the quick running of stock, as each owning line is directly interested in pushing on stock as quickly as possible. It seems too the business-like way of dealing with the transaction involved. Its working would produce no inaccuracies or anomalies, and it would simplify work generally, especially in audit offices, which is very desirable.

7. A slight addition to the Resolution would be necessary to meet cases, which, however, will be comparatively very few, of vehicles returned by a different route to that by which received, or partly so, stating that in these cases demurrage would be calculated on the single run for the line or lines only once run over.

No. 4266, dated the 10th June 1889.*

From—The Chief Auditor, East Indian railway,

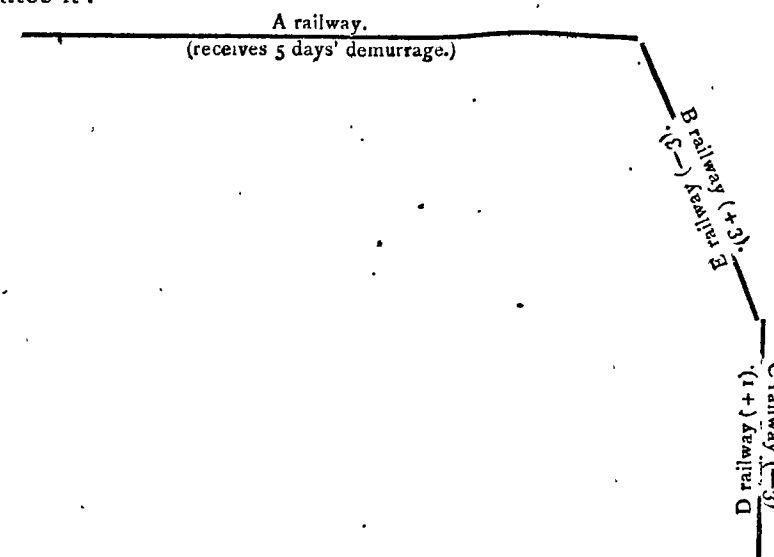
To—The Assistant Auditor, Jamalpur.

*Rule 17 of Railway Conference of 1888. Method of calculating demurrage charges.
Your No. 1592 C. A. of the 1st instant.*

Before addressing foreign lines regarding the detailed working of this rule, it is necessary that the rule should be more fully understood.

2. The example given in the proceedings of the conference supposes a system of railways that does not exist in India, and even if such a system did exist, it is only apparently under special arrangement [See rule 8 (b)] that wagons would be worked over it in the manner indicated.

3. Applying the example to such cases as are likely to arise, the following illustrates it:



Here B and E is the same railway also C and D. But the latter can balance its gains and losses, while the former cannot. Apparently it will depend on how a wagon has run on other lines, whether an intermediate line can balance its gains and losses or not. This seems unfair.

4. Again, it will be seen that the result of the running is that A railway receives 5 days' demurrage. Now, if the gain and loss on B. and E. be transposed, A will receive only 2 days' demurrage, notwithstanding the fact the total time absent from A railway is precisely the same.

5. This is manifestly wrong, and it seems to me doubtful if a rule that produces such results will be finally accepted. By only a partial return to a former simple rule further complications have been introduced into this already complicated matter.

* This letter was revised in accordance with the copy received with letter No. 10394, dated the 24th April 1890, from the General Traffic Manager, Great Indian Peninsula railway, and recirculated to the Railway officers addressed in letter No. 278, dated the 10th March 1890, from the Secretary, Railway Conference.

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*contd.*

6. Be good enough to examine the rule further; and if you agree that the results I have pointed out will follow from its working, please obtain and forward to me the Traffic Manager's views thereon.

No. 2854 G., dated the 19th June 1889.

From—The Assistant Auditor, East Indian railway,
To—The Traffic Manager, East Indian railway.

Rule 17 of Railway Conference of 1888. Method of calculating demurrage charges.
Your No. 4172 of the 27th ultimo

In forwarding herewith a copy of letter, No. 4266 of the 10th instant, from the Chief Auditor, I beg to submit, for scrutiny and consideration, two statements illustrating methods of calculating demurrage on vehicles, one marked A and the other B.

2. Statement A shows four illustrations of the working of Conference rule 17 of 1888 as interpreted by you, each exhibiting different results, although the wagon is shown to be absent from the parent line for precisely the same period in each case.

3. In example 1, the East Indian railway pays Rs. 8-14-6 on the outward, and gains Rs. 9-13-6 on the return journey, and therefore the net gain is Re. 0-15-0. The Great Indian Peninsula railway gains Rs. 8-14-6 on the outward, and loses Rs. 11-4-0 on the return journey, and therefore the net loss is Rs. 2-5-6. The Madras railway loses Rs. 22-15-6, and the North-Western railway gains Rs. 24-6-0, although, according to rule 16, the amount due is Rs. 22-8-0 only.

4. In example 2, the East Indian railway loses Rs. 26-11-6, while the Great Indian Peninsula railway loses Rs. 2-13-0, and the Madras railway gains Rs. 2-13-0, the North-Western railway getting Rs. 26-11-6, when Rs. 22-8-0 only is fairly due.

5. In example 3, the East Indian railway loses Rs. 15-7-6, although on the outward journey it gained 5 hours for which it got no credit. The Great Indian Peninsula railway also pays Re. 0-7-6 for one hour on the return journey, although it gained 3 hours on the outward journey, and the North-Western railway obtains Rs. 25-12-6 although Rs. 22-8-0 are properly due.

6. In example 4, the East Indian railway loses Rs. 22-15-6 on the return journey, which it pays to the North-Western railway, although only Rs. 22-8-0 were properly due in accordance with Rule 16.

7. You will observe from these examples that rule 17 is not equitable in its working. The railway connected with the parent line, if it works a wagon on to the next junction on the outward journey expeditiously, never derives any advantage whatever; while the next line, if it earns a rebate, can get nothing unless the first line has incurred demurrage, and it can only obtain a rebate to the extent of the demurrage incurred by the first line, although it may have earned more. Then the lines, which gain nothing from expeditious running on the outward journey, have to pay in full for any delay on the return journey. The destination railway is the only one that is not sometimes affected injuriously by the method observed of computing the debit or credit of each line separately on the outward and return journey.

8. It seems to me that the parent line cannot fairly claim any demurrage unless it is shown to be due under rule 16. The basis for computing demurrage due to the parent line should be the time a vehicle is away from that line. The parent line gains in the great majority of instances in obtaining the use of its wagons long before the free time expires; while under the working of the new rule, as shown in the examples given, it will obtain a larger amount of demurrage than rule 16 allows.

Enclosures to letter No. 278, dated the 10th March 1899, from the Secretary, Railway Conference—*cont'd.*

A.

A.
Statement shewing four illustrations of the working of Conference rule 17 of 1888, each exhibiting different results, although the wagon is shewn to be absent from the "parent line," for precisely the same period in each case.

Particulars of vehicles.		PLACED AT THE DISPOSAL OF THE RECEIVING RAILWAY AT JUNCTIONS.				TIME OCCUPIED IN RUNNING.		DISTANCE.		TIME DETAINED.		DEMURRAGE ACCRUED.		REMARKS.	
		Name of junction.		Date.		Time.		Miles.		Hours.		9 ple per hour.		Amount.	
Vehicle No.		Example (1).		January ...		1		20		...		Rs. A. P.		Rs. A. P.	
Owner	920	North-Western railway	...	...	...	6	20	606	120	101	...	...	...	...	...
Station to	Madras	Jubbulpore	...	...	...	11	23	877	123	147	...	...	...	...	...
Carrying capacity	to tons	Ditto	...	...	...	20	9	702	202	153	...	...	...	...	...
Description	Covered goods	Jubbulpore	...	...	...	27	12	877	171	147	...	...	...	...	...
		Ghaziabad	...	...	...	30	20	606	85	101	...	...	...	...	...
		Net amount payable to the North-Western railway													
Vehicle No.		Example (2).		January ...		1		20		...		...		...	
Owner	920	North-Western railway	...	...	...	6	1	606	101	101	...	...	...	...	...
Station to	Madras	Jubbulpore	...	...	...	12	10	877	153	147	...	...	...	...	...
Carrying capacity	to tons	Ditto	...	...	...	18	10	702	144	153	...	...	...	...	...
Description	Covered goods	Jubbulpore	...	...	...	24	6	877	140	147	...	...	...	...	...
		Ghaziabad	...	...	...	30	20	606	158	101	...	...	...	...	...
		Net amount payable to the North-Western railway													
Vehicle No.		Example (3).		January ...		1		20		...		...		...	
Owner	920	North-Western railway	...	...	...	5	20	606	96	101	...	...	...	...	...
Station to	Madras	Jubbulpore	...	...	...	11	20	877	144	147	...	...	...	...	...
Carrying capacity	to tons	Ditto	...	...	...	19	2	702	174	153	...	...	...	...	...
Description	Covered goods	Jubbulpore	...	...	...	25	6	877	148	147	...	...	...	...	...
		Ghaziabad	...	...	...	30	20	606	134	101	...	...	...	...	...
		Net amount payable to the North-Western railway													
Vehicle No.		Example (4).		January ...		1		20		...		...		...	
Owner	920	North-Western railway	...	...	...	6	1	606	101	101	...	...	...	...	...
Station to	Madras	Jubbulpore	...	...	...	12	3	877	146	147	...	...	...	...	...
Carrying capacity	to tons	Ditto	...	...	...	18	12	702	153	153	...	...	...	...	...
Description	Covered goods	Jubbulpore	...	...	...	24	14	877	146	147	...	...	...	...	...
		Ghaziabad	...	...	...	30	20	606	150	101	...	...	...	...	...
		Net amount payable to the North-Western railway													
		F. I. ry., Dr. N. W. ry., Cr.													

B.

മ്

6

B—continued.

ment for other lines—continued.

7

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*contd.*

No. 5144 A, dated the 1st July 1889.

From—The Deputy Traffic Manager, East Indian railway,
To—The Assistant Auditor, East Indian railway.

*Rule 17 of Railway Conference of 1888. Method of calculating demurrage charges.
Your No. 2854 of 19th ultimo.*

I quite agree with the Chief Auditor that the object is to simplify the keeping of accounts, and I believe it was only because the resolution is the work of an Auditor that our Agent voted for it. I would suggest that the Chief Auditor might refer to Mr. Lightfoot and hear what he has to say in the matter.

No. 5152, dated the 12th July 1889.

From—The Chief Auditor, East Indian railway,
To—The Auditors, Great Indian Peninsula and Bombay, Baroda and Central India railways.

I beg to forward herewith a copy of certain correspondence that has arisen on this railway in connection with rule 17 of the Railway Conference of 1888, prescribing the method of calculating demurrage charges on vehicles, and would solicit the favour of your opinion and that of the General Traffic Manager of your line on this rule.

2. You will observe from the illustrations of the working of the rule given in the correspondence that the demurrage due under it to the "parent line" will depend not so much on the length of time vehicles may be absent as on the manner in which they may be run upon the railways over which they may pass in the course of a journey, so that, although periods of absence may be precisely similar, the demurrage due will vary very considerably. You will also notice that whether a railway can balance its gains and losses in running a vehicle depends not so much on how the vehicle has been run upon the railway itself as on how it has been run upon other lines—a matter over which that railway has no control.

3. Both these results appear to me incorrect. Demurrage is a charge leviable for detention of vehicles beyond a fixed time that is allowed free. The only question then in which a "parent" or "owning" line should apparently be concerned is the period of absence of vehicles, and the charge should clearly be reckoned on the net time absent, *i.e.*, the gross time less the free time. To make the charge a variable one, where the periods of absence are the same, as the rule does, appears to me a departure from ordinary business principles.

4. Then as to balancing gains and losses of time in running, it will be seen that the terminal lines in each case can do this; that intermediate lines can do this in some cases, but not in others; and that their being able to do this or not depends upon working on other lines, which is beyond their control.

5. I would also notice the complications and extra work that the rule will cause in audit offices. It will be necessary for each line to have returns of the running of its vehicles on other lines and to check these.

6. As the rule makes a change in the present procedure, I would ask, if you and your General Traffic Manager concur in my objections to the rule, that you will be good enough to advocate a return to the old rule, under which the responsibility of each railway begun and ended at its own junctions, and demurrage charges levied from the time vehicles were absent from those junctions, irrespective of how they may have run on other lines.

7. It is understood that the new rule was urged at the Conference on the grounds that in order to ensure quick working of stock, railways losing time should pay for this, and those gaining time should be rewarded. My proposal will secure this result as effectually as the new rule, and it will do so without producing such anomalies as the rule does, while at the same time being free from what seems undue interference with transactions that should only affect adjoining railways.

No. G.9230, dated the 4th September 1889.

From—The General Traffic Manager, Bombay, Baroda and Central India railway,
To—The Chief Auditor and Accountant, Bombay, Baroda and Central India railway.

In returning the papers received under endorsement of your No. ⁴⁵⁴³₅₅₃₁ T. A. of the 28th ultimo, I beg to inform you that it occurred to me at the time the question was discussed at the Conference—

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*contd.*

- (a) that the demurrage accounts would be very troublesome; and
- (b) that the benefit of expeditious working would frequently go to whom it was *not* due.

Take the example given in the resolution. The wagon arrives at junction D in time: why should it be as fair to charge railway C demurrage as to give railway B nothing for expeditious working; and again, why should railway A get 5 days' demurrage when the wagon was only 2 days late getting back.

2. It did not appear to me to be right that demurrage accounts should be kept till a wagon was late, taking the whole distance traversed from leaving the home line.

3. I have no objection to the proposal made in paragraph 6 of the Chief Auditor, East Indian railway's letter to your address, *viz.*, that the responsibility of each railway should begin and end at its own junctions, and demurrage charges levied for the time vehicles were absent from these junctions irrespective of how they may have run on other railways.

No. G. F. 51-233, dated the 25th November 1889.

From—The Auditor, Great Indian Peninsula railway,
To—The Chief Auditor, East Indian railway.

Rule 17 of Railway Conference of 1888. Method of calculating demurrage charges.

With reference to your letter No. 5152 of the 12th of July last, I beg to enclose a copy of my letter No. G. L. 53-186 of the 13th of August last, and enclosure, to the General Traffic Manager of this line, and also a copy of his reply No. 31849, dated the 23rd instant, for your perusal, and shall be glad to hear if any further steps will be taken with a view to amend or set aside the decision arrived at, at the Conference. It will be seen that I consider the Conference rule requires alteration, although our General Traffic Manager prefers to let the matter remain as settled at the Conference.

I regret the delay that has occurred in replying to your letter.

No. G. L. 53-186, dated the 13th August 1889.

From—The Auditor, Great Indian Peninsula railway,
To—The General Traffic Manager, Great Indian Peninsula railway.

Rule 17 of the Railway Conference of 1888.

I forward for your perusal letter No. 5152,* dated the 12th ultimo, with enclosures, from the Chief Auditor, East Indian railway, together with a memorandum by Mr. Minors on the above subject, and I beg to request the favour of the return of the papers with your remarks.

I agree with the Chief Auditor, and I shall be glad to hear that you hold the same opinions.

Memorandum by Mr. F. Minors, dated the 1st of August 1889.

With reference to attached, I quite agree with East Indian railway Auditor's paragraph 3, which is our present mode of dealing with demurrage.

I cannot understand why Mr. Conder voted for the "method of calculation" as defined in No. 17 Regulation of Railway Conference of 1888, as from copy of his No. 8788, dated the 13th of May 1887, attached, it will be seen that he objected to demurrage on East Indian railway vehicles being calculated for each line separately.

The two statements attached have been checked and found correct.

If not too late, the Board might be induced to agree with East Indian railway Auditor's proposal, which would be better for all Audit offices than the "mode of calculation" agreed to at the Conference.

No. 31849, dated the 23rd November 1889†.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—The Auditor, Great Indian Peninsula railway.

I am sorry that your letter No. G. L. 53-186 of the 13th of August as to the Regulation 17 of the Railway Conference of 1888 has not been answered before.

* See page 8 *ante*.

† This letter was revised in accordance with the copy received with letter No. 10394, dated the 24th April 1890, from the General Traffic Manager, Great Indian Peninsula railway, and recirculated to the railway officers addressed in letter No. 278, dated the 10th March 1890, from the Secretary, Railway Conference.

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*contd.*

I kept it over partly because I expected, almost every day, that the Regulations of the Conference would be issued. I am at a loss to understand how it is they are so much delayed.

2. I return the papers which you sent me, consisting of letters from the officers of the East Indian railway, and a memo. from Mr. Minors, dated the 1st of August last, about the regulation in question.

3. The regulations will, of course, not be in force until they are officially issued by the Secretary to the Conference.

4. In the Regulation No. 17 days were mentioned for convenience. The calculations will all be upon hours, of course, as provided for in other of the regulations.

5. With regard to what Mr. Minors says about my action in voting at the 1888 Conference for what I objected to, under the existing rules, as settled at previous Conferences, I think he has overlooked the different circumstances, for it is not at all difficult to understand how a course, which was admitted to be contrary to the rule as it stands, may become the right course under altered rules. I objected, as Mr. Minors says, in May 1887, to pay demurrage to the East Indian railway, which they themselves acknowledged was not due to them under the rules in force. And that is quite consistent with my agreeing to deal with the matter in a different way, when the conditions were altered.

6. The difference between the rules of 1882 and 1884 and those of 1888 is that in the former rules loaded wagons could only be sent back by the nearest route and junction to the owning line. Under the Regulations of 1888 wagons may be returned under load by a different route, and the rule of 1888 had to provide for demurrage under that altered arrangement.

7. The Chief Auditor of the East Indian railway says that the example given in Regulation 17 represents a system of railways that does not exist in India. In that I think he must be mistaken, and I would remark that the example that he gives in para. 3 of his letter does not fully represent the position of the matter.

The regulation was framed to meet such a case as the following, which it will be seen, at once, is what may easily happen, namely,—

An Oudh and Rohilkhand railway wagon is loaded at Benares, for, say Bombay.

It will pass on to the East Indian railway at Mogulserai, and that railway will hand it over to the Great Indian Peninsula railway at Jubbulpore.

The Great Indian Peninsula will be entitled, under other of the Regulations of 1888, to load it back, say, for instance, to Rajghat (Oudh and Rohilkhand railway), and to send it by the shortest route, that is, by way of Itarsi, Agra, Tundla and Aligarh to its destination on the owning railway.

It might be booked from Benares to a place on the Madras, or the Nizam's, or the Baroda (broad gauge) railways, and it could be treated in precisely the same way on the return journey.

And, under this case, as an illustration, the Oudh and Rohilkhand (railway A) wagon would be handed over to railway B (East Indian) at Mogulserai;

Railway B would hand it to railway C (the Great Indian Peninsula) at Jubbulpore;

Railway C would hand it on the return journey to railway D (Indian Midland) at Itarsi;

Railway D would hand it to railway E (East Indian) at Agra junction;

Railway E would hand it to the owning railway A (Oudh and Rohilkhand) at Aligarh;

Or such a wagon might be returned, under load, to Roorkee (Oudh and Rohilkhand railway) and then railway E would hand it to railway F (North-Western) at Ghaziabad, and railway F would hand it to the owning railway at Saharanpur.

8. So far the regulation appears to be perfectly plain and easy to work. The Oudh and Rohilkhand railway will know whether any, and what, demurrage is due to it, or what rebate on demurrage they have to pay, when the vehicle, which they handed over to the East Indian railway at Mogulserai, is returned to them, by the East Indian at Aligarh, or by the North-Western at Saharanpur; and, under the regulation, the East Indian or the North-Western

Enclosures to letter No. 278, dated the 10th March 1890, from the Secretary,
Railway Conference—*concl.*

railway will be prepared and in a position, from having collected it, or incurred it themselves, to pay over to the Oudh and Rohilkhand whatever amount may thus be due to them for demurrage.

9. The calculation and collection of the demurrage and the rebate appear to be easy and plain enough. Each railway over which the wagon on its journey, from starting place to return to its owners, will know, and account to, or receive from the railway to which it hands over the wagon, for whatever demurrage or rebate is incurred, or is earned, on its own line.

10. The defect, as it appears, the Chief Auditor considers it to be in the regulation is that in the example it is not specially stated that the railway which first receives a wagon from the owning railway (in the cases I have mentioned, it would be railway B) shall receive the money due for the time saved in the running over railway B, and the Chief Auditor of the East Indian evidently thinks that railway B will not get any credit for that saving, while other railways over which the wagon passes will get credit for any such saving.

And while the regulation is quite clear, it must be admitted that the example might be made more clear.

The example is incomplete rather than incorrect.

11. I am inclined therefore to think that, as the question has been raised, the example might be altered so as to show how the point is intended to be dealt with, and will work out in practice, and perhaps the regulation might be left as it is, and the example might be slightly altered in the following manner, (I will quote hours, not days), namely,—

1. Railway A (parent line,) hands a wagon to railway B.

2. Railway B hands it to railway C, having gained twelve hours.

Railway C pays railway B for twelve hours as rebate on demurrage.

3. Railway C hands the wagon to railway D twenty-seven hours late, and has therefore lost thirty-nine hours. It has already paid railway B for the twelve hours that B gained, and railway C has to pay railway D for twenty-seven hours.

4. Railway D hands it over to railway E four hours before time, having gained thirty-one hours. Railway D will receive four hours' rebate from railway E, and has already received twenty-seven hours from railway C.

5. Railway E hands it to railway A (parent line) eight hours late, having lost twelve hours, and it pays railway A demurrage for eight hours and will have already paid railway D for four hours.

And perhaps another example might be added in the following terms, namely,—

1. Railway A hands a wagon to railway B.

2. Railway B hands the wagon to railway C, having lost eleven hours, and pays C demurrage accordingly.

3. Railway C hands it over to railway D twenty-one hours before time, having gained thirty-two hours, and will receive from D twenty-one hours' rebate on demurrage, having already received for eleven hours from B.

4. Railway D hands the wagon over to railway E, having neither lost nor gained, and therefore simply receives from E what D had previously paid to C, namely, twenty-one hours' rebate on demurrage.

5. Railway E hands it to railway F fourteen hours late, having lost thirty-five (35) hours, and E pays F for fourteen hours, having previously paid to D for twenty-one hours.

6. Railway F hands it over to A (parent line) five hours before time, having therefore gained nineteen hours, for which it has received demurrage from E for fourteen hours, and for the other five hours railway A will pay railway F.

These examples, if inserted in the regulation, instead of the example that is printed, would apparently make the matter quite clear, and there will, I think, if that is done, be no need for any other alteration of the regulation.

12. I think, however, that it is perhaps hardly necessary to raise the question at present. I should prefer that the regulation should be brought into force and acted upon in the way I have explained, and after a time we should be in a position to see how it works, and we might then arrange for any necessary alteration of it.

Synopsis of the opinions given on East Indian railway proposal to adopt Resolution No. 24 as originally passed at the Conference of 1888.

The proposal of the East Indian railway, circulated with Secretary, Railway Conference's letter No. 278, dated 10th March 1890, will be found printed in detail on pages 1 to 8 *ante*. The proposal is briefly summed up in the following extract from the letter from the Chief Auditor, East Indian railway, on the subject:—"I would ask, if you and * * * concur in my objections to the rule (viz., rule 17 of the Conference of 1888), that you will be good enough to advocate a return to the old rule, under which the responsibility of each railway begun and ended at its own junctions, and demurrage charges were levied from the time vehicles were absent from those junctions, irrespective of how they may have run on other lines."

Southern Mahratta railway.	Indian Midland railway.	North Western railway.	Bengal and North-Western and Rohilkund and Kumaon railways.	Eastern Bengal State Railway.
Says it is evident that Regulation No. 17 requires to undergo some modification to render its meaning perfectly clear. Adds that the Southern Mahratta railway company, at the present time, is not directly interested in the question. (<i>Vide page 14 infra.</i>)	Agrees with his Auditor in thinking that if Mr. Conder and the Auditor, East Indian railway, are correct in supposing that the Conference rule, as illustrated by the example given, is incomplete, that the rule is incorrect and needs amendment. Adds that the proposal made by the Auditor, East Indian railway, does not secure the object that is aimed at as fully as could be desired, and that what is sought and desired is equitable treatment, viz. a rule or rules that will secure the return of vehicles to the parent lines within reasonable periods of time, calculated at certain regulated time and distance allowances, and without bearing unduly for any default upon lines over which the vehicles may pass. Suggests for consideration proposals of Assistant Auditor. (<i>Vide pages 14 to 20 infra.</i>)	Says the Examiner of Accounts suggests that the proposed rule 17 be adopted, at any rate experimentally, with the modification that all demurrage should be paid over to the parent line, or that the existing regulation 40, be retained with a special provision for vehicles returned loaded by a different route. But that he (the Manager) is disposed to suggest that the first suggestion, viz., that the revised rule, with the modification that all demurrage be paid over to the parent line, might conveniently be adopted. (<i>Vide pages 21 and 22 infra.</i>)	Agrees with the Chief Auditor, East Indian railway, that rule 17 of the Conference of 1888, requires modification, and that the new examples for working the rule, given by the General Traffic Manager, Great Indian Peninsula railway, in his letter No. 31849, dated 23rd November 1889, (<i>Vide pages 9 to 11 ante</i>), and if adopted, the parent line would often have to pay for the return of its own wagons.	Manager agrees with the East Indian railway that Resolution No. 24 of the Conference should be allowed to stand as originally passed, and that it is clear from the illustrations given that the new rule, as it now stands in Regulation No. 17, will work very unequally, while it will greatly increase the work both at junctions and in audit offices. (<i>Vide pages 23 and 24 infra.</i>)

Synopsis of the opinions given on East Indian railway proposal to adopt Resolution No. 24, as originally passed at the Conference of 1888—concl.

The proposal of the East Indian railway, circulated with Secretary, Railway Conference's letter No. 278, dated 10th March 1890, will be found printed in detail on pages 1 to 8 *ante*. The proposal is briefly summed up in the following extract from the letter from the Chief Auditor, East Indian railway, on the subject:—"I would ask, if you and * * * concur in my objections to the rule (viz., rule 17 of the Conference of 1888), that you will be good enough to advocate a return to the old rule, under which the responsibility of each railway begun and ended at its own junctions, and demurrage charges were levied from the time vehicles were absent from those junctions, irrespective of how they may have run on other lines."

His Highness the Nizam's Guaranteed State railway.	Bhavnagar-Gondal-Junagarh-Porbandar-railway.	South Indian railway.	Bombay, Baroda and Central India (including Rajputana-Malwa) railway.	Great Indian Peninsula railway.	Bengal-Nagpur railway.	Madras railway.
States the Nizam's Guaranteed State railway company will be prepared to agree to the East India railway proposal to revert to the old rule, as it is only fair that the responsibility of each railway should begin and end at its own junction or junctions, and demurrage be levied for the time vehicles are absent from these junctions, no matter how they may have run on other lines.	Enters into reasons which led to the passing of Regulation No. 17 at the Conference of 1888, and concludes by saying that it would seem desirable that this Regulation should be tried for a time, at any rate, before being condemned. (<i>Vide pages 24 to 26 infra.</i>)	Is of opinion that the method of calculating demurrage charge laid down in Regulation No. 17 of the Railway Conference of 1888 should be brought into force and acted upon in the way explained by Mr. Conder in his letter No. 31849, dated 23rd November 1889 (<i>Vide pages 9 to 11 ante</i>).	Says the East Indian railway is quite correct in stating that the new examples given by the General Traffic Manager, Great Indian Peninsula railway, are at variance with the intention of the regulation as understood at the Conference, and that the plan proposed by the Chief Auditor, East Indian railway, in his letter No. 3152, dated 12th July 1889, (<i>vide page 8 ante</i>) might, with advantage, be adopted in preference to that advocated by the General Traffic Manager, Great Indian Peninsula railway. (<i>Vide page 27, infra.</i>)	Explains the difference between the rules of 1882 and 1884 and those of 1888. Adds that Regulation No. 17 of the Conference of 1888 might be left as it is, and that the example might be slightly altered in manner explained (<i>Vide pages 9 to 11 ante</i>).	States that Regulation 17 of the Railway Conference of 1888, is very unfair to the second or third lines over which a wagon travels in the case where they have gained time, and no line over which a wagon travelled before has lost time, and the parent line gains this advantage. Adds that the East Indian railway has very fairly stated the inequity of the case. Suggests what he considers the most equitable course, but adds that so far as the Bengal-Nagpur railway is concerned, the new rule would probably not be unfavourable, but that Mr. Conder's proposals would lead to most serious consequences if adopted. (<i>Vide pages 27 and 28 infra.</i>)	Says he supports the proposal of the Chief Auditor of the East Indian railway, made in his letter No. 582, dated 21st January 1890, (<i>vide page 2 ante</i>) in which the objection to Regulation 17 of the Conference of 1888 is very clearly shown.

No. 5144, dated 2nd June 1890.

From—The Acting Agent, Southern Mahratta railway,
To—The Secretary, Railway Conference.

With reference to your Circular letter No. 278, dated 10th March last, relative to the unsatisfactory operation of revised Conference Regulation No. 17, regarding the method of calculating demurrage charges, I have the honor to enclose a copy of letter, No. G. 40872 of 27th idem, from the Traffic Manager of this Company, on the subject. It will be seen in comparing Mr. Craik's letter with the correspondence you have sent to me that he does not agree with the Traffic Manager of the Great Indian Peninsula railway in his interpretation of Conference Regulation No. 17, and that the Traffic Manager of the Bombay, Baroda and Central India railway differs from both of them. As all these officers were present at the Conference, it is evident that Regulation No. 17 requires to undergo some modification to render its meaning perfectly clear.

I am of opinion there is much force in the objections raised by the Chief Auditor of the East Indian railway to the proposed method of calculating demurrage charges, and, if it promises advantages over that previously in force, it is doubtful if it is worth incurring extra expense for the purpose of securing them.

I may add that at the present time this company is not directly interested in the question.

No. 40872 G., dated 27th March 1890.

From—The Traffic Manager, Southern Mahratta railway,
To—The Acting Agent, Southern Mahratta railway.

With reference to the enclosure received with your No. 2272 of 21st instant, I beg to inform you that I see no occasion for any alteration in the rule which embodies the following principles, viz.:—

- (a) Each railway over whose system a wagon is conveyed is allowed a reasonable time for its transport.
- (b) Failing to carry it in the time allowed demurrage is incurred.
- (c) This demurrage becomes payable in whole or in part to any company which makes up the whole or part of the lost time, and, if the time be not made up, the parent company receives it as compensation for loss of use of the wagon.
- (d) A railway moving a wagon over its system in less than the allowed time does not receive any premiums unless time has been lost on another line and has not been made up.

An alteration in the former rule was necessary, because wagons may now be returned homeward by a route different to that over which they were sent on the outward journey.

I see nothing unsatisfactory in the rule, and I certainly should not support a proposal to change it on the mere ground that an additional clerk or two may be required in audit offices. Rules of general usefulness cannot well be set aside, because their enforcement causes an additional expenditure of 20 or 30 rupees a month in an Audit office.

No. 455A, dated 20th June 1890.

From—The Agent and Chief Engineer, Indian Midland railway,
To—The Secretary to the Railway Conference.

In reply to your No. 278, dated 10th March 1890, and printed enclosures, I have the honor to forward as a contribution to the discussion in regard to the unsatisfactory operation of revised Conference Regulation No. 17 a printed copy of letter No. 541 T. A., from the Auditor of this railway, to my address, together with a note by the Assistant Auditor.

2. The views therein recorded have my approval

No. 541 T. A., dated 10th June 1890.

From—The Auditor, Indian Midland railway,
To—The Agent and Chief Engineer, Indian Midland railway.

Your endorsement No. 455 A.—2726 of 26th April, on papers forwarded by the Secretary to the Railway Conference re calculation of demurrage charges.

Rule 17 adopted at the Railway Conference of 1888 was designed to meet the special cases of demurrage accruing on vehicles returned to the parent line by a route varying from that followed on the original or outward journey.

2 It also of course regulates the settlement in the ordinary cases of vehicles going and returning by the same route.

3. It is to the operation of the rule in this latter class of cases that the Auditor, East Indian railway, takes exception, and the examples given in statement A illustrate some anomalies of the rule when applied to such cases.

4. Mr. Conder, however, says it is intended that time saved on each separate line should be paid for, and this addition to the Conference rule would, in the case taken by the Auditor, East Indian railway, give practically the same result as the proposition of the latter as worked out in the illustrations in statement B.

5. We are met, however, with the difficulty that Mr. Conder's interpretation does not accord with the example given in the Conference proceedings. That example shows that the first line (railway B.), though it gained 3 days would not receive any payment from railway C. In Mr Conder's example, however, railway B. obtains credit from railway C.

6. Mr. Conder and the Auditor, East Indian railway, are therefore agreed that the Conference rule as illustrated by the example given is incomplete.

7. If incomplete, it appears to me it must also be incorrect, inasmuch as it fails to meet the cases for which it is intended in a satisfactory manner, and that it therefore requires to be amended.

8. The question is whether the working of the same Conference rule in the way illustrated by Mr. Conder's example, or the alternative rule embodied in Resolution No. 24 of the Conference proceedings and advocated by the Auditor, East Indian railway, would meet the requirements of the case

9. In the first of Mr. Conder's examples, assuming it refers to the case of an Oudh and Rohilkhand vehicle proceeding *via* Jubbulpore to Bombay on the outward journey and returning under load *via* Itarsi and Cawnpore to the parent line, after numerous and somewhat complicated cross adjustments the net result would be—

	Dr.	Cr.
	Hours.	Hours.
RAILWAY A.—O. & R. R.—Parent line	...	8
" B.—E. I. R.	...	12
" C. & D.—G. I. P. R.	...	8
" E.—I. M. R.	...	12
	20	20

10. In the second example, which would be met by the case of an Oudh and Rohilkhand vehicle going *via* Jubbulpore on the outward journey and returning *via* Itarsi, Agra, and Tundla to Aligarh (Oudh and Rohilkhand), the settlement would be as under—

	Dr.	Cr.
	Hours.	Hours.
RAILWAY A.—O. & R. R.—Parent line	...	5
" B. & F.—E. I. R.	...	8
" C. & D.—G. I. P. R.	...	32
" E.—I. M. R.	...	35
	40	40

These and other hypothetical cases that have been worked out lead to the conclusion that the rule would not be found to work equitably.

11. I think any time gained would be an accident of the conditions affecting the working of the traffic generally rather than a service for which the line on which the saving occurred should be paid, while to mulct the parent line for the early return of its own vehicles would, as the Auditor, East Indian railway, remarks, change altogether the character of the demurrage penalty rule.

12. There is an alternative proposal, which I have alluded to above, in the letter from the Auditor, East Indian railway, to the Agent of that line, paragraph 5, that Resolution No. 24 of the Conference be allowed to stand as originally passed, and in paragraph 7 it is suggested that an addition be made to the Resolution to meet the cases of vehicles returned by a different route to that by which received, or partly so, that in such cases demurrage would be calculated on the single run for the line or lines only once run over.

13. It is not so stated, but the inference is that the examples in statement B accompanying the letter from the Assistant Auditor, East Indian railway, are intended to illustrate the working of the rule embodied in Resolution 24.

14. Example 3 does not, however, appear to me to be consistent with the provisions of that rule, for, as I understand it, the Madras railway would only be concerned in the running on its own system, not in the previous running, and while it would have to pay for any demurrage incurred could not obtain payment for time gained.

15. This appears to me an instance of unfairness in the working of the rule which provides for payment for demurrage only, and thus, while the Madras Railway, in the case quoted, would have to pay the gross amount for any demurrage arising on its own system, the Great Indian Peninsula and East Indian railways would benefit by a net saving on the lines beyond them respectively, as they would only pay the net demurrage on the running to and from the junctions at which they took the vehicle over. There is no mention in the rule of payment for time gained.

16. The examples in the statement do not either cover all the cases that might arise, and I may instance the following to further show that the rule is unequal in its application:—

(a) A case where time is gained on each of the lines run over and the vehicle is returned to the parent line within the period allowed for running free of demurrage.

In this case no rebate would be allowed to any of the lines.

(b) A case where, say, the time saved on the Madras equalled the loss on the Great Indian Peninsula, but the net result of the through running was a loss of time incurred on the East Indian railway. The Great Indian Peninsula railway would escape payment owing to the rebate for time saved on the Madras railway; but the East Indian railway would pay to the parent line the demurrage which was incurred on the East Indian railway.

(c) A case where, say, the Great Indian Peninsula railway lost time, but where the Madras railway had made a saving sufficient to cover the loss on the Great Indian Peninsula railway and leave a balance to be taken in reduction of a further loss of time on the East Indian railway; but not sufficient to cover the whole loss in the case of the latter.

17. If we take cases of wagons returned by a different route to that by which received, and apply the same rule with the addition suggested by the Auditor, East Indian railway, in paragraph 7 of his letter, we get similar unequal results.

18. I am led to the conclusion that the proposal made by the Auditor, East Indian railway, does not secure the object that is aimed at as fully as could be desired.

19. What I think is sought and desired is equitable treatment, a rule or rules that will secure the return of vehicles to the parent lines within reasonable periods of time calculated at certain regulated time and distance allowances, and without bearing unduly for any default upon lines over which the vehicles may pass.

20. I do not think it is generally claimed or desired that payment should be made for time gained in particular cases.

21. The proposals which are made in the accompanying papers by the Assistant Auditor, traffic audit section, of this line appear to me to contain a solution on an equitable basis, and I submit them for consideration as a contribution to the discussion.

22. They may at first sight appear more elaborate than other proposals, but in practice it will be found that they will entail but very little more work than is involved in the settlement of accounts at present; in fact, the form proposed is one in use with the East Indian railway and ourselves, and I presume with other companies.

23. Whatever rule may be finally adopted for dealing with these somewhat complicated cases, I would suggest that the working should be fully illustrated by examples to ensure uniformity and avoid disputes.

24. As the Auditor, East Indian railway, remarks, the cases of vehicles returned by routes other than those followed on the outward journey have been very exceptional; on this line we have not so far had a single instance, but with the extension of railways and facilities for inter-communication they will probably be more frequent in the future, and it was doubtless this consideration that influenced the Conference in framing a rule that it was hoped would suffice for such cases, while they were also, I presume, influenced in rejecting the rule embodied in Resolution 24 by considerations of the unequal way in which it would work, such as I have illustrated in the above examples.

Note dated the 10th June 1890, by Mr. C. Collins, Assistant Auditor, Indian Midland railway.

1. In the annexures hereto, I have sketched out two rules for calculating demurrage, one to meet cases of stock going and returning by the same route, and the other to meet cases of stock travelling by different routes on the outward and returned journeys.

2. The examples given will, I think, be sufficient to illustrate the working of the proposals, but it may be well to explain a little more fully the procedure necessary in regard to the compilation of the accounts.

3. In the case of stock going and returning by the same route, the forms already in use will suffice. For ready reference, I attach, in a condensed shape, a copy of the return used at present to shew the running over each company's line, and the only addition to the work now involved would be the adjustment of rebate, an adjustment which, however, would be equally entailed if the Assistant Auditor, East Indian railway's proposal were adopted, (see statement B accompanying his letter No. 2854 G., dated 19th June 1889).

4. In the case of stock travelling by different routes on the outward and return journeys the procedure would necessarily be somewhat different, but no additional forms would be required. For instance, take a case, such as I have quoted in the example, of a wagon booked from an Oudh and Rohilkhand railway station to Madras *via* Mogulserai, Jubbulpore and Raichur, and returning *via* Raichur, Itarsi and Cawnpore. The Madras railway would render to the Great Indian Peninsula railway an account of the running from Raichur to Madras, and *vice versa*; the Great Indian Peninsula railway would render an account to Indian Midland railway, in the form already referred to, of the running from Jubbulpore to Madras and Madras to Itarsi; and the Indian Midland railway would see at a glance that a return of the running over the East Indian railway was required, which it would obtain, and make the necessary adjustment, as shewn in the examples.

5. It would, I think, facilitate the settlement of cases of this nature if an additional column were provided in the "outward journey" portion of the junction return to show the station from, and in the "return journey" portion to show the station to, which the vehicle was booked. (This has already been suggested to the East Indian railway per our letter No. $\frac{520}{1735}$ G.M. of the 17th ultimo, in reply to their Assistant Auditor's circular letter No. 4735 D. of the 4th December 1889). With this slight alteration, which should also be embodied in the mileage and demurrage statement, the present forms would meet all the requirements of the new rule, and I am of opinion that no difficulty would be found in the working of that rule.

6. It appears to me that the course I have proposed is one which will involve the minimum amount of change in the present system.

NOTE.—Although the subject of demurrage only is under consideration, it may be added that in the case quoted in paragraph 4, the East Indian railway in rendering an account of the running over its line to the Indian Midland railway, should at the same time credit the latter railway with the mileage due, which would then be paid over to the parent line in the usual way.

DRAFT OF PROPOSED RULE.

Demurrage shall be calculated and paid under the following rules:—
(a) On vehicles travelling by the same route on both outward and return journeys.

Each company shall pay to the owning company the actual demurrage accruing on its own system until the railway contiguous to the parent line is reached. The contiguous railway shall then pay to the parent line the net demurrage only, at the same time dividing any rebate on account of time gained by one or more companies amongst the companies losing time in ratio to such loss.

Examples based on a vehicle booked from an Oudh and Rohilkhand station to Madras, *via* Mogulserai, Jubbulpore and Raichur, and returning by the same route.

- (1) A.—O. & R. R.—Parent line.
B.—E. I. R.—Gains 12 hours.
C.—G. I. P. R.—Neither loses nor gains } Net demurrage, nil.
D.—M. R.—Gains 6 hours.

D company renders an account of the running over its line to C company, and pays nothing; C company renders an account of the running over its own and D companies' lines (each separately) to B company, and pays nothing; and B company renders an account to A company shewing the actual time absent from the parent line, and no adjustment whatever is necessary.

- (2) A.—O. & R. R.—Parent line.
B.—E. I. R.—Loses 12 hours.
C.—G. I. P. R.—Gains 6 hours.
D.—M. R.—Loses 6 hours. } Net demurrage, 12 hours.

D company renders an account of the running over its line to C company, and pays 6 hours' demurrage; C company renders an account of the running over its own and D companies' lines (each separately) to B company, and pays the 6 hours' demurrage it has received from D; and B company renders an account to A company shewing the actual time absent from the parent line, pays the net demurrage of 12 hours, and divides the rebate of 6 hours between its own and D companies in proportion to the time lost by each, *viz.*, 12/18 or 2/3 of 6 hours = 4 hours to itself, and 6/18 or 1/3 of 6 hours = 2 hours to D company.

- (3) A.—O. & R. R.—Parent line.
B.—E. I. R.—Loses 6 hours.
C.—G. I. P. R.—Loses 6 hours.
D.—M. R.—Gains 6 hours. } Net demurrage, 6 hours.

As before, D company renders an account to C company, and pays nothing; C company renders an account to B company and pays 6 hours' demurrage; and B company renders an account to A company, pays the net demurrage of 6 hours and divides the rebate equally between its own and C companies.

(b) On vehicles travelling by different routes on outward and return journeys.

Companies over whose lines the vehicles pass in both directions shall pay to the contiguous railway the gross demurrage as provided in clause (a). The company settling direct with the parent line shall pay the net demurrage only, at the same time making the necessary adjustments between the other companies in respect of demurrage and rebate.

Examples based on a vehicle booked from an Oudh and Rohilkhand railway station to Madras *via* Mogulserai, Jubbulpore, and Raichur, and returning *via* Raichur, Itarsi and Cawnpore, Oudh and Rohilkhand railway.

- (1) A.—O. & R. R.—Parent line.
B.—E. I. R.—Loses 4 hours—one journey only.
C.—G. I. P. R.—Loses 12 hours—both journeys. } Net demurrage, nil.
D.—M. R.—Gains 12 hours—both journeys.
E.—I. M. R.—Gains 4 hours—one journey only.

D company renders an account to C company of the running over its line, and pays nothing; C company renders to E company an account of the running over its own and D companies' lines (each separately), and pays 12 hours' demurrage; E company, having to settle with A company (parent line) obtains a return from B company of the running over that line, and is then in a position to calculate the net demurrage, which in this case is nil, therefore C company is credited with a rebate of 12 hours, and no adjustment with B company is necessary, the demurrage due being exactly balanced by the amount of rebate.

- (2) A.—O. & R. R.—Parent line.
B.—E. I. R.—Loses 4 hours—one journey only.
C.—G. I. P. R.—Loses 12 hours—both journeys. } Net demurrage, 6 hours.
D.—M. R.—Gains 6 hours—both journeys.
E.—I. M. R.—Gains 4 hours—one journey only.

D company renders an account to C company of the running over its line, and pays nothing; C company renders to E company an account of the running over its own and D companies' lines (each separately) and pays 12 hours' demurrage; E company, having to settle with A company (parent line), obtains a return from B company of the running over that line, pays A company 6 hours' net demurrage, credits C company with its share of rebate, *viz.*, $\frac{12}{18}$ or $\frac{2}{3}$ of 10 hours = $7\frac{1}{3}$ hours, and debits B company with $1\frac{1}{2}$ hours' demurrage, *i.e.*, 4 hours less rebate $\frac{4}{18}$ or $\frac{1}{4}$ of 10 hours = $2\frac{1}{2}$ hours = demurrage due $1\frac{1}{2}$ hours.

3. Based on a vehicle booked from an Oudh and Rohilkhand railway station to Madras *via* Mogulserai, Jubbulpore and Raichur, and returning *via* Raichur, Itarsi, Agra Junction and Aligarh. In this case it will be seen that the vehicle travels over the East Indian railway on both journeys, but between different junctions, *viz.*, from Mogulserai to Jubbulpore on the outward journey and from Agra junction to Aligarh on the return journey.

- (3) A.—O. & R. R.—Parent line.
B.—E. I. R.—Gains 4 hours—both journeys.
C.—G. I. P. R.—Loses 12 hours—both journeys. } Net demurrage, 6 hours.
D.—M. R.—Gains 6 hours—both journeys.
E.—I. M. R.—Loses 4 hours—one journey only.

D company renders to C company an account of the running over its line and pays nothing; C company renders to E company an account of the running over its own and D companies' lines (each separately), and pays 12 hours' demurrage; E company renders an account to B company of the running over its own and D and C companies' lines (each separately), and pays 16 hours' demurrage, *viz.*, 12 hours accruing on C company's line and 4 hours on its own line; B company, having a record of the running over its own line on the outward journey, is then in a position to make the settlement in respect of the throughout running, which it does by crediting the parent line with the net demurrage of 6 hours and dividing the rebate between C and E companies, *viz.*, $\frac{12}{18}$ or $\frac{2}{3}$ of 10 hours = $7\frac{1}{3}$ hours to C company, and $\frac{4}{18}$ or $\frac{1}{4}$ of 10 hours = $2\frac{1}{2}$ hours to E company.

[illegible]

NOTE.—The full sized return provides columns for shewing the running over the second railway beyond the adjoining line, and is thus sufficient to meet any but exceptional cases of working of stock.

No. 1387 M., dated 21st June 1890.

From—The Manager, North Western railway,
To—The Secretary, Railway Conference.

I have the honour to acknowledge your letter No. 278, dated the 10th March 1890, in regard to the method of calculating demurrage charges under the operation of revised Conference Regulation No. 17.

2. I forward, for your information, copy of a letter from the Examiner of Accounts of this railway, with enclosures, in which he suggests that the proposed rule No. 17 be adopted, at any rate, experimentally, with the modification that all demurrage should be paid over to the parent line, or that the existing rule (No. 40) be retained with a special provision for vehicles returned loaded by a different route. I am disposed to think that the first suggestion, *viz.*, that the revised rule with the modification that all demurrage be paid over to the parent line might be conveniently adopted.

3. I scarcely think that Mr. Conder's rendering of Regulation No. 17 is that intended by the Conference, for, as the Chief Auditor, East Indian railway, remarks, the revised regulation does not appear to provide for payment for time gained excepting in cases of vehicles handed over behind time, in which cases any time gained by the owning line reducing such detention is allowed as a demurrage credit. Adopting Mr. Conder's interpretation, a parent line would have to pay the owning line in all cases of the return of its stock in advance of the time allowed by rule. Such payments might occasionally exceed the mileage earned, and the parent line would, under such circumstances, not only receive no payment for the use of its wagons, but would have to pay other lines for using them.

, No. 5861. M., dated 6th June 1890.

From—The Examiner of Accounts, North Western railway,
To—The Manager, North Western railway.

In forwarding herewith copy of Traffic Superintendent's Nos. 1594G.—3367, dated 4th instant, together with copy of my No. 4450 M., dated 3rd May 1890, I have the honor to state that the advisability of making over excess demurrage to lines which had saved time by quick running does not commend itself, as it would entail a good deal of work of doubtful utility and would probably create confusion with an attendant increase in correspondence, besides being opposed to the principle advocated in this office letter to Traffic Superintendent.

Nos. 1594 G.—3367, dated 4th June 1890.

From—The Traffic Superintendent, North Western railway.
To—The Examiner of Accounts, North Western railway.

Conference Rule No. 17.

I have the honor to state that I agree with the view expressed by you in your No. 4450 M., dated 3rd May 1890.

Of the two alternatives you propose, I am disposed to favor the first, *viz.*, that the proposed rule may be adopted with the modification that all demurrage should be paid over to the parent line.

As I understand the rules, however, it would be possible for the total amount of demurrage payable by all lines over which a vehicle had run to be greater than the amount actually due to the parent line for the period for which its vehicle had been absent. Assuming this to be the case, would it not be advisable to make such excess amount over to the lines which by quick running had saved time in some proportion, say, in proportion to the time saved by such lines.

Enclosures to your No. 2910 M., dated 21st March, returned herewith.

No. 4450 M., dated 3rd May 1890.

From—The Examiner of Accounts, North Western railway.
To—The Traffic Superintendent, North Western railway.

In continuation of this office No. 2910 M., dated the 21st March 1890, I have the honor to make the following observations.

The Chief Auditor, East Indian railway, appears to have correctly read and represented the effect of the operation of the new rule regarding demurrage. The interpretation of the Traffic Manager, Great Indian Peninsula railway, gives full application to the principle of a premium for quick running, but under this reading a parent line would have to pay in all cases of the return of its stock in advance of the time allowed by rule, which payment, it is possible, might in numerous instances exceed the mileage earned, and a railway would thus, instead of receiving anything for the use of its vehicles, be paying other lines for using it, or in other words it would be penalised for lending it. This can hardly have been the intention of the rule, and is directly opposed to the example given of its intended operation.

The proposals of the Chief Auditor, East Indian railway, are in effect a return to the procedure under the original Conference rule, and here it may be convenient to notice the main features of the original, the existing, and the proposed demurrage rules.

Under the original rule, a railway accounted for a vehicle to the line from which it received it on the basis of the net time occupied on the entire journey outwards from, and homewards to, the junction at which it was received by the accounting line.

Under the existing rule, a railway accounts to the line from which it received the vehicle on the basis of the net time occupied on both the outward and homeward journey over each line in succession, the demurrage accrued upon any line being paid over to the parent line.

Under the new rule, a railway will account for a vehicle to the line to which it makes it over on the basis of the time occupied in the journey, the account for the outwards and homewards journeys being for intermediate lines distinct, paying demurrage, if any has accrued, on its line, or if time has been saved by it, receiving a rebate at demurrage rates to such extent as it may be covered by any demurrage which may have been handed to it by the line from which it received the vehicle.

The main object is to secure the prompt return of vehicles. Under the old rules a line might be absolved from the penalty for the slow working by the quick working of lines beyond it, and the intended effect of the demurrage rule may be said to have thus to some extent been diminished, and this was no doubt had in view when at the Conference of 1882 it was agreed that the account should be distinct for each line, and the demurrage accrued on any line should be paid over to the parent line. It is not considered, therefore, that it would be desirable to revert to this procedure.

In the new rule the time allowance is made more strict by separating the account of the outward and homeward journeys, and a further incentive to quick running is added in a premium for time saved in cases in which a vehicle has been received behind time; but it appears anomalous that a premium for time saved can only be obtained in cases in which other lines were in default when the vehicle was received.

I do not attach much value to the effect of such a premium, and it would seem equitable that, as in the existing rule, demurrage incurred should be paid over to the parent line. If any general acceleration is feasible, this might be enforced by reducing the time allowance. The existing rule does not provide for cases of vehicles returned loaded by a different route, but the new rule meets cases of this kind. The anomaly pointed out by the Chief Auditor that though vehicles may be returned to parent line in the same time, yet different amounts of demurrage may be payable, may and does occur under the present rules. I do not apprehend there will be any greater complication of accounts than under the present arrangement though the separation of account of outward and homeward journeys may perhaps slightly increase clerical work in audit, and it is a question whether accounting at once for a vehicle to the line to which it is made over may not in the end be found to simplify matters.

It is thought that the proposed rule might be adopted at any rate as an experiment, with the modification that all demurrage should be paid over to parent line, or the present rule might be retained with a special provision for vehicles returned loaded by a different route.

No. 556 M., dated 22nd March 1890.

From—The Manager, Eastern Bengal state railway,

To—The Secretary, Railway Conference.

In reply to your No. 278 of the 10th instant, I have the honor to state that I entirely concur in the recommendation of the Chief Auditor, East Indian railway, expressed in paragraph 5 of his letter No. 582, dated 21st January last, that Resolution No. 24 of the Conference be allowed to stand as originally passed.

2. It is abundantly clear from the illustrations given that the new rule, as it now stands in Regulation No. 17, will work very unequally, while it will greatly increase the work both at junctions and in Audit offices.

3. The examples given under the head B, by the Chief Auditor, East Indian railway, show I think correctly how demurrage should be charged and how the allowances for time lost and gained should be distributed. But I think a simpler way for dealing with the accounts is to deal with the whole demurrage and free time of a wagon at each junction from the time the wagon arrives at that junction to the time it returns to it again. This, I believe, was the general, if not universal, practice before 1882. The examples under the head B would then be calculated as shown in statement C, attached to this letter. It will be seen that the net result to each railway is exactly the same as given by the Chief Auditor, East Indian railway, in his statement B, except that a terminal railway gets no allowance for saving time as is shown in example 3, but a terminal railway would never get any allowance for saving time when it was the only foreign railway dealing with a vehicle, and in other cases the terminal railway has the advantage over intermediate lines of getting a liberal allowance of time at destination. The junction returns and the audit demurrage statements will be much simpler, if made out for the total time and distance according to statement C than separately for the time and distance on each line according to B. This is evident, for, according to C, each junction contains in itself the whole information necessary to complete the account, whereas, according to B, it would be necessary to collate the returns from all the junctions concerned in order to make out the demurrage bill, so I think that the system shown by C should be followed. To make this clear I would propose to add to Resolution No. 24 of the Conference, after the words "*be paid over to the owning railway*," the following: "*Demurrage shall be calculated at each junction on the total time occupied and allowed for the whole journey from such junction to destination and back.*"

4. It will be necessary to make provision for the exceptional case of vehicles being returned under load by a partly or wholly different route and to the same or to a different junction on the parent line. It was perhaps on account of too great weight being given to the supposed difficulty of doing this that Conference Resolution No. 24 was superseded by Regulation 17 as it now stands. If Regulation 17 is now abandoned in favor of Resolution No. 24, I would therefore propose the following additional clause, which will, I think, meet the case:—

"When a vehicle is diverted on the homeward route, demurrage shall, in the first instance, be calculated on the whole journey to destination and back to the junction at which the vehicle is first diverted from the outward route in the same manner as if the vehicle had then and there been returned to the parent line. For the diverted portion of the return journey each line from the junction, where first diverted up to the parent line, shall account to the line beyond for demurrage on the time occupied and allowed for the whole journey, from the junction where first diverted up to the junction with the line beyond."

5. Other ways of dealing with the demurrage on a diverted vehicle may no doubt be devised if the principle of Conference Regulation No. 24 is accepted, but the procedure I propose will, I think, be found as simple as any. Notice of the time and place of diversion must of course be sent from the junction where a vehicle is first diverted to the junctions on the abandoned portion of the outward route and also to all junctions up to the parent line on the new homeward route. The former junctions can close their books by an entry of the time and place of the diversion, so that the demurrage bill can

be made out direct from them. The new junctions will open their books by an entry of the time and place of diversion and close them when the vehicle passes, from which the demurrage bill for the diverted part of the homeward journey can be directly calculated.

6. I also entirely agree with paragraph 4 of letter No. 582, dated 21st January 1890, from the Chief Auditor, East Indian railway, that Mr. Conder's interpretation of Conference Regulation 17 "appears to be directly opposed to the regulation." Demurrage is a very heavy penal charge imposed when incurred, and the regulation does not contemplate a parent line having to pay this penal rate for every hour saved out of the free time allowed. The Chief Auditor, East Indian railway, points out that the parent line would have to pay this, and Mr. Conder's first example shows that this would be the case. For, in that example, railway C pays B for 12 hours' demurrage. Now, if railway C and all succeeding lines keep the wagon for exactly the free time allowed, it is clear that the 12 hours' demurrage paid by C must finally be paid by the parent line. As Mr. Conder's method of working Regulation 17 is not practicable, he will perhaps, on reconsideration, agree to accept the principle of Conference Resolution No. 24.

C.

JUNCTION BOOKS.										AUDIT BILLS.					
	Wagon number.	Owner.	Tons.	Destination.	WHEN RECEIVED.		WHEN RETURNED.		Whether returned loaded or empty.	Mileage to destination and back.	Time allowed.	Time absent.	No. of hour's demurrage.	Amount.	
					Day.	Hour.	Day.	Hour.							
Ghaziabad	920	N. W. R.	10	Madras	1	20	30	20	E.	3,668	648	696	48	22 8 0	E. I. ry. Dr. to N. W. ry.
Jubbulpore	920	Ditto	...	Ditto	6	20	27	12	"	2,456	446	496	50	23 7 0	G. I. P. ry. Dr. to E. I. ry.
Raichur	920	Ditto	...	Ditto	11	23	20	9	"	702	153	202	49	22 15 6	Madras ry. Dr. to G. I. P. ry.
Ghaziabad	920	N. W. R.	10	Madras	1	20	30	20	E.	3,668	648	696	48	22 8 0	E. I. ry. Dr. to N. W. ry.
Jubbulpore	920	Ditto	...	Ditto	6	20	27	9	"	2,456	446	493	47	22 0 6	G. I. P. ry. Dr. to E. I. ry.
Raichur	920	Ditto	...	Ditto	11	22	20	9	"	702	153	203	50	23 7 0	Madras ry. Dr. to G. I. P. ry.
Ghaziabad	920	N. W. R.	10	Madras	1	20	30	20	E.	3,668	648	696	48	22 8 0	E. I. ry. Dr. to N. W. ry.
Jubbulpore	920	Ditto	...	Ditto	6	19	26	23	"	2,456	446	484	38	17 13 0	G. I. P. ry. Dr. to E. I. ry.
Raichur	920	Ditto	...	Ditto	12	23	19	6	"	702	153	151	...	...	...
Ghaziabad	920	N. W. R.	10	Madras	1	20	30	20	E.	3,668	648	696	48	22 8 0	E. I. ry. Dr. to N. W. ry.
Jubbulpore	920	Ditto	...	Ditto	5	20	26	20	"	2,456	446	504	58	27 3 0	G. I. P. ry. Dr. to E. I. ry.
Raichur	920	Ditto	...	Ditto	14	20	22	5	"	705	153	177	24	11 4 0	Madras ry. Dr. to G. I. P. ry.

No. 1692, dated 2nd April 1800

No. 1692, dated 2nd April 1890.

From—The Manager and Engineer-in-Chief, Bhavnagar-Gondal-Junagarh-Port-bander railway,

To—The Secretary, Railway Conference.

I have the honor to acknowledge the receipt of your No. 278 of the 10th March, forwarding a copy of certain correspondence relative to the unsatisfactory

operation of revised Conference Regulation No. 17 regarding the method of calculating demurrage charges, and as requested to express my opinion thereon.

The regulation referred to appears in the Conference proceedings as Resolution No. 29 and as having been agreed to practically unanimously, only one delegate not voting. From the record of the proceedings, it might be thought that the resolution was perhaps hastily carried without full discussion, but those who were there are aware this was not the case. The matter had been under consideration for some days, and many proposals were brought forward which were finally withdrawn in favor of the resolution as passed, which was adopted as the best method then suggested for dealing with an admittedly difficult matter.

2. It was generally known that the working of the resolution would give the audit some extra trouble, but that was not considered a sufficient reason for not giving it a trial.

3. The principles that seem to underlie the resolution as accepted may be stated as follows:—

(i) That a reasonable charge for the use of foreign wagons having been fixed, and a reasonable period settled, which that payment shall cover, it is unnecessary to offer any inducement in the form of a rebate for saving on that time.

(ii) That where a wagon has, however, through some cause been already delayed beyond its allowed time, it is desirable to expedite its further progress as much as possible, and with that object it is decided that any line making up this lost time or any portion of it shall receive a certain payment levied from the defaulting line for such expeditious working.

(iii) That the regulation having to provide for return routes either over the same railways or over different systems, it was desirable to treat the passage over any railway in each direction separately.

4. The resolution is objected to as being (a) inaccurate, (b) unsatisfactory, and as (c) giving extra work in Audit offices.

5. With reference to the last objection, as previously noted, it was admitted that this would probably be the effect, at any rate, at first. It remained to be seen whether the value of the regulation would prove to be equivalent to the extra work that it could be shown to entail when worked for some practical period.

6. The regulation is said to give inaccurate and unsatisfactory results, apparently, mainly, because from certain examples submitted it is shown—

(i) That, though vehicles may be absent from the parent line for precisely similar periods of time, the demurrage to be paid may vary considerably.

(ii) That terminal lines can balance gains and losses, while whether intermediate lines can make up for time lost in running one way by quick running on the other will depend on the running on other lines over which they have no control.

7. As regards the demurrage paid varying, although the time of absence from the parent line is precisely similar, an examination of the examples will explain the cause, which is, that the working over each line and in each direction is treated separately, and that this working varied to a large extent in the different examples.

8. *Example (1).*—On the whole during its journey it was detained on different lines 92 hours in excess of the time allowed, and 40 hours of this was made up. The wagon is supposed to have left the East Indian railway 19 hours late, and consequently the East Indian railway had to pay over to the Great Indian Peninsula Rs. 8-14-6. The Great Indian Peninsula by quick working did more than make up the full time and handed over the wagon 5 hours ahead of its time. For this it retains the payment made by the East Indian railway and the wagon goes on with a clean bill. The Madras railway, however, delays it 49 hours and demurrage accrues to the extent of Rs. 22-15-6, which it pays over to the Great Indian Peninsula. The Great Indian Peninsula further delays it 24 hours and a further Rs. 11-4-0 becomes due, and it hands over Rs. 34-3-6 to the East Indian railway, which, however, saves 21 hours of this excess, and retaining Rs. 9-13-6 on this account hands over the balance Rs. 24-6-0 to the parent line.

9. *Example (2).*—Here the wagon was on the whole detained 63 hours, and 6 hours of this was made up. The wagon left Raichur 6 hours late, and the Great Indian Peninsula pays over to the Madras railway Rs. 2-13-. The Madras line more than wipes out the excess time, sends on the wagon with a clean bill, and retains the Rs. 2-13-0. The Great Indian Peninsula delays the wagon 57 hours, and has consequently to pay up Rs. 26-11-6 to the North-Western railway, the parent line.

10. *Example (3).*—Here the wagon was in all only detained 55 hours, but none of the delay once incurred was made up. No delay occurred till the wagon got on to the Madras line, there it was delayed 21 hours; that railway consequently had to pay over Rs. 9-13-6 to the Great Indian Peninsula; the latter failed to make up time and in fact lost another hour, so that it has to hand on the demurrage with Rs. 0-7-6 added to the East Indian railway, which again lost a further 33 hours for which it has to add Rs. 15-7-6 to the money already in its hands, making a total of Rs. 25-12-6 to be paid to the parent line.

11. *Example (4).*—Here the wagon was detained in all 49 hours, having been up to time or ahead of its time until it got on to the East Indian railway for the last part of its journey home when the East Indian railway detained it 49 hours and has to pay for the same.

12. The inaccuracy or unsatisfactory working of the regulation as exemplified by these examples is not very apparent. The lines that delay wagons pay and those who expedite delayed wagons are paid for doing so. The varying payments that are made in the three examples show the rule to be more searching than that proposed to be substituted for it, and it apparently was the desire of the delegates that the rule should be more searching and that the lines actually responsible for the delay should be saddled with it.

13. The working through of the wagon in the several examples was very different, and the results to the parties responsible for the working were also very properly different.

14. With reference to the second objection that terminal lines can recoup themselves for slow working in one direction by quick running on the return, while intermediate lines, except by careful watching to catch the same wagon cannot in the same way balance their account, is true enough when both the outward and return route are the same, but presumably all lines will have a turn at being the terminal line and all lines can balance their demurrage payments by quick working not perhaps of the actual wagon delayed but by the next delayed wagon that they may have to deal with. The best and surest way of effecting that object will be to be careful to work all foreign wagon traffic through as expeditiously as possible, and to encourage this is apparently the aim of the resolution.

15. It would seem desirable that the Conference Resolution should be tried for a time at any rate before being condemned.

No. 4841 T., dated 21st April 1890.

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

With reference to the papers forwarded with your No. 279 of 10th March last, regarding calculation of demurrage charges on stock interchanged between railways, I have the honour to state that the Chief Auditor, East Indian railway, is quite correct in stating that the new examples given by the General Traffic Manager, Great Indian Peninsula railway, are at variance with the intention of the regulation, as understood at the time. It was pointed out at the Conference that Regulation 17 would have the effect of giving nothing in the way of a benefit for expeditious working to the first railway or railways over which the vehicle travelled, nor would any benefit for expeditious working accrue except in the case of a vehicle which had already overstayed its allotted time on such railway or railways; and this consequence was deliberately accepted. But it does not seem to be right. The plan proposed by the Chief Auditor, East Indian railway, might, with advantage, be adopted in preference to that advocated by the General Traffic Manager, Great Indian Peninsula railway.

* * * * *

No. 4419, dated 9th May 1890.

Memo. by Agent and Chief Engineer, Bengal-Nagpur railway.

Copy of the following forwarded to the Secretary, Railway Conference, with reference to his No. 278, dated 10th March 1890.

No. 7304-G. 259, dated 23rd April 1890.

From—The Joint Auditor, Bengal-Nagpur railway,

To—The Agent and Chief Engineer, Bengal-Nagpur railway.

Method of calculating demurrage charges.

With reference to your endorsement No. 2698 of 21st March, received from the Traffic Manager on the 17th current, I have the honor to report as follows.

The resolution as agreed to at the Railway Conference of 1888 is very unfair to the second or third lines over which a wagon travels in the case where they have gained time, and no line over which a wagon has travelled before has lost time, and the parent line gains this advantage. The Chief Auditor, East Indian railway, has very fairly stated the inequity of the case. The example he gives being the example given to Rule 17 of the Conference Regulations put in rather a different way. The whole point of the case is that a wagon is away from the parent line so long that if the whole journey off the parent line was taken as upon one line only, two days' demurrage would have accrued, and yet under the new ruling five days' demurrage would have to be paid to the parent line.

Mr. Conder in order to remedy this inequity has introduced a possible injustice to the parent line. Proceeding on the same lines as Mr. Conder, the following example will show how this might be:—

Railway A hands a wagon to railway B., Railway B hands the wagon to Railway C., having gained ten hours, and will receive rebate for ten hours from railway C. Railway C hands the wagon to railway D, having also gained a further ten hours, and will receive twenty hours from railway D.

Railway D hands the wagon to railway A (parent line), having also gained a further twenty hours, and will receive rebate for forty hours from railway A.

That is, the parent line will have to pay rebate for forty hours for receiving its wagon back within the prescribed time.

This result could hardly have been intended by the resolution at the Conference; the resolution at any rate does not cover it.

The equitable course would be that in all cases where demurrage accrues for the owning line to get the demurrage due on the time absent over the free time for the whole journey, any balance of demurrage being divided amongst the lines that have gained time in the proportion of the time gained, but to do this would lead to a very considerable amount of extra work in Audit offices and would not probably be worth the extra amount that would have to be paid.

The return of wagons to the parent line by a route different to that of the outward journey will increase the work in connection with the mileage and demurrage of vehicles, and nothing has been yet settled regarding what documents a line should receive from foreign junctions concerning its stock returning by a different route.

As far as this line is concerned, the new rule would probably not be unfavourable, as more of our wagons go off the line than foreign wagons come on to it; but if Mr. Conder's interpretation was agreed to, it would lead to most serious consequences. I have had the mileage, demurrage and rebate calculated for 100 wagons booked to Waree Bunder during January and February of this year according to Mr. Conder's example, and the result shows that we should have had to pay rebate on an average for 66 hours or Rs. 34-0-6 per ton wagon; and as we only get mileage of Rs. 19-13-9 per wagon fully loaded, it would mean that on each wagon going to Waree Bunder we should have to pay an average amount of Rs. 14-2-9 and get no mileage at all, and this amount would have to be paid for only getting our wagons back within the free time allowed.

No. 338, dated 2nd September 1890.

From—The Secretary, Railway Conference,

To—The Agents, Bombay, Baroda and Central India, East Indian, Great Indian Peninsula, and South Indian railway companies; the Agents and Chief Engineers, Southern Mahratta, Bengal and North-Western, Rohilkhand-Kumaun, Indian Midland, and Bengal-Nagpur railway companies, Limited; the Agents and Managers, Madras railway company, and His Highness the Nizam's Guaranteed state railway company, Limited; the Managers, North-Western, and Eastern Bengal state railways; the Manager and Engineer-in-Chief, Bhavangar-Gondal-Junagarh-Porbandar state railway.

The several railways, parties to the Railway Conference of 1888, having furnished an expression of their opinions relative to the unsatisfactory operation of the Regulation No. 17 passed at the Conference of 1888, regarding the method of calculating demurrage charges, as asked for in circular letter No. 278 of the 10th March 1890, from the Secretary, Railway Conference, I am directed to communicate the following alternative proposals based on the views expressed:—

I.—The parent line shall be paid the demurrage due on the time vehicles are absent over the free time for the whole journey, and any demurrage incurred in excess of that payable to the parent line shall be rateably divided among the lines which saved time.

Example—

Railway A (parent line) hands a wagon to railway B.

Railway B hands it to railway C, having gained three days.

Railway C hands the wagon to railway D, having lost three days.

Railway D hands it over to railway E, having gained one day.

Railway E hands it over to railway A (parent line), having lost three days.

Therefore railway A (parent line) will receive $+3-3+1-3=2$ days' demurrage; but as the gross demurrage accruing is six days, *viz.*, three days on railway C and three days on railway E, the difference between the gross demurrage and the two days paid to the parent line (railway A), *i.e.*, four days, would be rateably paid to railways B and D.

II.—The parent line shall be paid the demurrage due on the time vehicles are absent over the free time for the whole journey, which demurrage shall be charged rateably among the lines losing time.

III.—Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and when incurred shall be paid by the line on which it was incurred to the line to which the vehicles are handed over, and the demurrage payment so received shall be paid over at the next junction to the next railway, less a rebate of demurrage based on the time saved through expeditious working, or increased by any further additional demurrage incurred through slow working, and so on, in succession at each junction till return to the parent line.

This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.

Example No. 1—

Railway A (parent line) hands a wagon to railway B.

Railway B hands it to railway C, having gained twelve hours. Railway C pays railway B for twelve hours as rebate on demurrage.

Railway C hands the wagon to railway D, twenty-seven hours late, and has therefore lost thirty-nine hours. It has already paid railway B for the twelve hours that B gained, and railway C has to pay railway D for twenty-seven hours.

Railway D hands it over to railway E four hours before time, having gained thirty-one hours; railway D will receive four hours' rebate from railway E, and has already received twenty-seven hours from railway C.

Railway E hands it to railway A (parent line) eight hours late, having lost twelve hours, and it pays railway A demurrage for eight hours, and will have already paid railway D for four hours.

Example No. 2—

Railway A hands a wagon to railway B.

Railway B hands the wagon to railway C, having lost eleven hours and pays C demurrage accordingly.

Railway C hands it over to railway D twenty-one hours before time, having gained thirty-two hours, and will receive from D twenty-one hours' rebate on demurrage, having already received for eleven hours from B.

Railway D hands the wagon over to railway E, having neither lost nor gained, and therefore simply receives from E what D had previously paid to C, namely, twenty-one hours' rebate on demurrage.

Railway E hands it to railway F fourteen hours late, having lost thirty-five (35) hours, and E pays F for fourteen hours, having previously paid to D for twenty-one hours.

Railway F hands it over to A (parent line) five hours before time, having therefore gained nineteen hours, for which it has received demurrage from E for fourteen hours, and for the other five hours railway A will pay railway F.

IV.—Whatever demurrage is paid by any railway for vehicles of other railways shall belong to and be paid over to the owning railway, demurrage being calculated at each junction on the total time occupied and allowed for the whole journey from such junction to destination and back.

When a vehicle is diverted on the homeward route, demurrage shall, in the first instance, be calculated on the whole journey to destination and back to the junction at which the vehicle is first diverted from the outward route, in the same manner as if the vehicle had then and there been returned to the parent line. For the diverted portion of the returned journey, each line from the junction where first diverted up to the parent line shall account to the line beyond for demurrage on the time occupied and allowed for the whole journey from the junction where first diverted up to the junction with the parent line.

V.—Whatever demurrage is paid by any railway for vehicles of other railways shall belong to and be paid over to the owning railway.

When a vehicle is diverted on the homeward route, demurrage shall in the first instance be calculated on the whole journey to destination and back to the junction at which the vehicle is first diverted from the outward route, in the same manner as if the vehicle had then and there been returned to the parent line. For the diverted portion of the return journey, each line from the junction where first diverted up to the parent line shall account to the line beyond for demurrage on the time occupied and allowed for the whole journey from the junction where first diverted up to the junction with the parent line.

VI.—Whatever amount is paid for demurrage by any railway for the use of vehicles of other railways shall in all cases belong to, and be paid over, to the parent railway.

This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.

VII.—Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and when incurred shall be paid by the line on which it was incurred to the parent line.

This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.

2. The adoption of proposals Nos. I and II would, it is feared, cause a considerable complication in accounts.

3. It will be observed that proposal No. III involves the substitution of two new examples in lieu of the one given in the revised Regulation No. 17. With this proposed modification, a parent line would have to pay the owning line in all cases of the return of its stock in advance of the time allowed by rule. Such payments might occasionally exceed the mileage earned, and the parent line would under the circumstances not only receive no payment for the use of its wagons, but would have to pay other lines for using them.

4. Perhaps the most simple methods of dealing with the subject are as shown in the proposals numbered IV to VII. I am, however, directed to bring to your notice the fact that proposal No. VII is somewhat identical with the Regulation No. 17 of 1888. In the latter, a further incentive to quick running is added in a premium for time saved in cases in which a vehicle has been received behind time, but as it appears anomalous that a premium for time saved can only be obtained in cases in which other lines were in default when the vehicle was received, the effect of such a premium does not seem of much value, and it would, therefore, appear equitable that all demurrage incurred should be paid over to the parent line.

5. Proposal No. VII might be adopted at any rate as an experiment.

6. With these observations, the President would ask the favor of your co-operation in arriving at an early decision about a matter which has already given rise to a great deal of correspondence and delay, and would ask you to state which of the proposals put forward you are in favor of, and whether you are prepared to accept and adopt that proposal which receives the greatest number of votes.

Synopsis of opinions on the seven different proposals made in letter No. 338, dated 2nd September 1890, from the Secretary, Railway Conference, for calculating demurrage charges.

Suggestions or new proposals made by railways, which do not agree to accept Secretary, Railway Conference's proposals I to VII.	Proposal No. I.—The parent line shall be paid the demurrage due on the time vehicles are absent over the free time for the whole journey, and any demurrage incurred in excess of that payable to the parent line shall be rateably divided among the lines which saved time.	Proposal No. II.—The parent line shall be paid the demurrage due on the time vehicles are absent over the free time for the whole journey, which demurrage shall be charged rateably among the lines losing time.	Proposal No. III.—Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and when incurred shall be paid by the line on which it was incurred to the line to which the vehicles are handed over, and the demurrage payment so received shall be paid over at the next junction to the next railway, less a rebate of demurrage based on the time saved through expeditious working, or increased by any further additional demurrage incurred through slow working, and so on, in succession at each junction, till return to the parent line. This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.
<i>Bhavnagar-Gondal-Junagarh-Porbandar railway.</i>—Manager and Engineer-in-Chief says he has seen a suggestion by the Great Indian Peninsula railway to substitute a time instead of mileage basis for calculating demurrage, and that it seems that if that suggestion could be combined with proposal No. VII a most simple solution of the difficulty would be arrived at, but that his line does not interchange stock and is therefore, not entitled to a vote. (Vide page 33 <i>infra</i>.) <i>Great Indian Peninsula railway.</i>—General Traffic Manager sends a draft of proposals circulated to all railways in regard to Conference Regulation No. 17 of 1888, and makes certain proposals for revising the method of calculating mileage and demurrage charges. The Secretary to Agent adds that the Agent is in communication with other railways, and a reply will be sent when the Agent is advised of the views of all railways on Mr. Conder's proposals. (Vide pages 33 to 36 <i>infra</i>.) Suggests later that the matter had better be referred to a Conference. (Vide page 50 <i>infra</i>.) <i>Assam railways and Trading Company, Limited.</i>—Says no foreign lines are connected with this railway. <i>Madras railway.</i>—Agent states that as none of the suggested methods of changing the rules have been accepted, it is not proposed, at present, to interfere with the existing system. (Vide page 50 <i>infra</i>.)	None of the railways addressed vote for this proposal, except the Indian Midland railway.—Vide remarks under proposal No. II.	<i>Indian Midland railway.</i>—The Agent considers that this proposal is, on the whole, the best calculated to give the desired results, and to secure equitable treatment to the Indian Midland railway and other lines. Failing adoption of this proposal, he says he would prefer No. I to the others. (Vide page 38 <i>infra</i>.)	None of the railways addressed vote for this proposal.

Proposal No. IV.—Whatever demurrage is paid by any railway for vehicles of other railways shall belong to and be paid over to the owning railway, demurrage being calculated at each junction on the total time occupied and allowed for the whole journey from such junction to destination and back. When a vehicle is diverted on the homeward route, demurrage shall, in the first instance, be calculated on the whole journey to destination and back to the junction at which the vehicle is first diverted from the outward route, in the same manner as if the vehicle had then and there been returned to the parent line. For the diverted portion of the returned journey, each line from the junction where first diverted up to the parent line shall account to the line beyond for demurrage on the time occupied and allowed for the whole journey from the junction where first diverted up to the junction with the parent line.	Proposal No. V.—Whatever demurrage is paid by any railway for vehicles of other railways shall belong to, and be paid over to the owning railway. When a vehicle is diverted on the homeward route, demurrage shall in the first instance be calculated on the whole journey to destination and back to the junction at which the vehicle is first diverted from the outward route, in the same manner as if the vehicle had then and there been returned to the parent line. For the diverted portion of the returned journey, each line from the junction where first diverted up to the parent line shall account to the line beyond for demurrage on the time occupied and allowed for the whole journey from the junction where first diverted up to the junction with the parent line.	Proposal No. VI.—Whatever amount is paid for demurrage by any railway for the use of vehicles of other railways shall in all cases belong to, and be paid over, to the parent railway. This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.	VII.—Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and when incurred shall be paid by the line on which it was incurred to the parent line. This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.
Eastern Bengal state railway.—Manager thinks this proposal the most suitable for determining the question of payments. Adds that the words "junction with the line beyond," should seemingly be substituted for "junction with parent line" in last line of paragraph, and concludes by saying that the proposal which receives the greatest number of votes will be accepted. East Indian railway.—Agent says he is prepared to adopt this proposal.	None of the railways addressed vote for this proposal.	None of the railways addressed vote for this proposal.	Bengal and North Western railway.—Agent is in favour of this proposal, but will accept that proposal which receives the greatest number of votes. Rohilkhand-Kumaon.—Agent is in favour of the proposal, but will accept and adopt that proposal which receives greatest number of votes. Wardha Coal State railway.—Manager says proposal No. VII might be adopted, at any rate, as an experiment. South Indian railway.—Agent is in favour of this proposal, but will accept that proposal which receives the greatest number of votes. Southern Mahratta railway.—Agrees to accept proposal No. VII. Bombay, Baroda and Central India railway.—Agent considers this proposal the fairest, and says: "I will recommend its adoption on this railway, provided all other railways accept it." Bengal-Nagpur railway.—Agent accepts this proposal, but regrets he cannot agree to accept and adopt the proposal which receives the greatest number of votes until he knows which proposal it is. North Western railway.—Manager says he is in favour of this proposal, and will adopt it, should the connected railways accept it. Oudh and Rohilkhand railway.—The Manager approves of this proposal with the following addition:— "A railway which has incurred or paid demurrage on a vehicle on its outward journey shall be entitled to set off against such liability or payment any time it may save in returning such vehicle to the parent line, whether it be returned by the same or a new route." (Fide pages 37 and 38 <i>infra</i>.)

No. 4383, dated 23rd September 1890.

From—The Manager and Engineer-in-Chief, Bhavnagar-Gondal-Junagarh-Porbandar railway,

To—The Secretary, Railway Conference.

In reply to your No. 338 of the 2nd of September 1890, on the subject of alternative demurrage rules for stock interchange, I have the honor to state that I have lately seen a suggestion by the General Traffic Manager of the Great Indian Peninsula railway to substitute a time instead of mileage basis for calculating such demurrage, and that it seems to me that if that, could be combined with proposal No. VII, we would apparently have arrived at a most simple solution of the difficulty. Demurrage being charged at so much an hour from the time the vehicle was made over until its return, and such charge being divided between the lines over which it had worked in proportion to the time spent on each, such a system would retain the important incentive to quick running of a saving in payment.

2. As this railway does not at present interchange stock, it can scarcely be considered as entitled to vote on any question of a temporary experimental working of any new system.

No. 25718, dated 1st October 1890.

From—The General Traffic Manager, Great Indian Peninsula railway,

To—The Secretary, Railway Conference.

I have the honor to send you three copies of the letters (with draft proposals attached) No. 22695 of the 26th of August, and No. 25582 of the 30th September 1890, which I have addressed to all the different railways in regard to Regulation No. 17 of the Conference of 1888 as to demurrage, and also as to some other of the regulations which it will be seen I have proposed to alter in order to meet the difficulty which has been pointed out in regard to Regulation 17, and in order to encourage the prompt working of wagons of one railway when running over another.

No. 22695, dated 26th August 1890.

From—The General Traffic Manager, Great Indian Peninsula railway,

To—All Railways.

You are aware that the Conference Regulations contained in chapters I and II are now in force except Regulation 17.

And we have been considering the matter of the demurrage charges, &c., which as they were proposed under Regulation 17, must, we presume, be considered as finally rejected. But some regulation is required, as the old rule on that subject is not applicable under other altered regulations which permit of wagons being returned under load under certain agreed conditions by a route different to that by which it is received.

2. As it is to the interest of each of the railways to get its wagons back as quickly as possible, I am disposed to think that a suggestion made by the Locomotive Superintendent of this railway to the effect that, instead of paying at per mile, we might pay at per hour for vehicles running on the line of another railway, the payment of demurrage being calculated upon hours detained beyond a time limited by a fixed number of miles for each hour.

3. We are strongly of the opinion that in some way railways, which work wagons back in less than the agreed time, should benefit by so doing, and it seems that that would be a good way of doing this, for a company which works the wagons quickly will have the less number of hours to pay for, and therefore will get, in effect, the benefit of the quicker running which was proposed to be given in Rule 17, but was objected to in the way in which it was then suggested.

4. I am prepared to propose the alteration of the mileage rules to provide for this difference in the mode of calculating the payment. There are, I think, reasons why the charge per hour is better than the charge per mile. One of the reasons is that it is the same principle as is adopted in the demurrage rules in which the charges are at per hour, and I do not quite know how the different mode of calculation came to be adopted.

5. I have prepared for consideration a draft of what I think might be adopted, and I have prepared also a draft of the demurrage rules as I would propose to have them fixed.

I send you enclosed a copy of these drafts.

I am sending them to other railways with a similar letter to this, and I may say that I think it likely that, if other railways can accept it, we shall be willing to adopt these rules, in place of those already in force and in place of Rule 17.

6. It is probable that some other of the regulations not mentioned in the enclosed may need to have the term mileage taken out of them and the new proposals accepted.

These drafts are merely for consideration, and may possibly have to be modified and the wording may, I dare say, be improved.

7. I beg to ask for your early consideration of these suggestions, and I shall be glad if you will favor me with your views upon them.

Draft, 26th August 1890.—Great Indian Peninsula railway.

Payment for use of other company's wagons.

13(a). The charge for each coaching vehicle running on the line of another railway shall be seven annas and three pies per vehicle per hour on the standard gauge, and three annas and four pies per hour on the metre-gauge, both on the outward and return journey, except that no charge shall be made on coaching vehicles not used for ordinary traffic unless under load.

14(a). The charge* for each standard and metre-gauge goods vehicle, while running on the line of any other railway, shall, after deducting the time allowed free under clause (a) of Regulation 16, be at the rate of one and three-quarter pies per ton per hour for all the time that the wagon is actually detained off the parent line on each foreign line over which it runs.

* NOTE.—This charge is reckoned upon the present basis, namely, six miles per hour at three-fifths of a pie on a mile per ton, which, reckoning for both outward and return journey, gives one and three-quarter pies per ton per hour.

This payment shall be reckoned upon the weight of goods loaded in the wagon on its being handed over by the parent line.

15(a). Standard gauge coaching vehicles shall be allowed free of demurrage, one hour for every twelve and a half miles, and metre-gauge coaching vehicles shall be allowed one hour for every eight miles run on foreign lines; and for both gauges twenty-four hours' extra at destination.

(c) Except as provided in Regulation 19, demurrage shall be charged at the rate of eight annas per hour for standard gauge vehicles and four annas per hour for metre-gauge vehicles on each coaching vehicle detained beyond the times named in clause (a) of Regulation 13, and clause (b) of this regulation and in Regulation 20.

16(a). Goods vehicles shall be allowed free, the following times namely:

- (1) thirty-six hours for unloading at destination;
- (2) twenty-four hours for reloading at destination;
- (3) twelve hours at any intermediate station for unloading; and
- (4) Twelve hours at any intermediate station for reloading.

These allowances of free time shall be deducted from the time actually occupied before the calculation of the charges for the use of the wagon under the provision of clause (a) of Regulation 14.

17. Demurrage shall be calculated separately on the time occupied in passage of vehicles over each line in succession and when incurred shall be paid by the line on which it was incurred to the line to which the vehicles are handed over. The demurrage payment so received shall be paid over, together with any additional demurrage that may have accrued, to the next railway, and so on, in succession at each junction, until the vehicle is returned to the parent line to whom all demurrage payments are to be handed over. An intermediate line is, however, to be entitled to reckon the outward and return journeys as one, any time saved on either of such journeys being deducted from the time lost on the other such journey, the demurrage due for the balance of the time lost being paid for by such intermediate railway.

This regulation applies to all vehicles, coaching as well as goods, whether full or empty, and whether the return journey be by the same route as the outward journey or not.

Example—

Railway A (parent line) hands a wagon to railway B; railway B hands it to railway C, having gained two hours' and there is therefore no demurrage incurred;

Railway C hands the wagon to railway D, five hours having been lost on railway C, and pays five hours' demurrage to railway D; railway D (which is the same as railway B) hands it to railway E on the return journey, having lost an hour, and has therefore no demurrage to pay, as railway B gained two hours on the outward journey; or—

if in such a case railway D (same as railway B) loses six hours, then railway D will pay to railway E for four hours, being the balance of the time saved and lost on railway B—D on the outward and return journey. Railway E hands it over to railway A (parent line), having saved two hours; railway E will, therefore, have no demurrage to pay, but will hand over what it has received from railway B—D, namely, five hours incurred by railway C and either nothing from railway B—D or four hours from railway B—D as the case may be.

The wagon will be back on parent line either two hours late with payment for five hours' demurrage, or eleven hours late with payment for nine hours' demurrage.

Regulation 2, clause (c), to be altered to the following, namely:

Fractions of a mile shall be charged as a mile, and parts of an hour shall be charged as an hour.

No. 25582, dated Bombay, the 30th September 1890.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—All Railways.

With reference to my letter No. 22695 of 26th ultimo, as to the rejection of conference Regulation No. 17, I enclose a fresh draft, bearing this date in which I have embodied the proposals which were made in the draft sent with that letter and have added to clause 14, a proviso which appears to be necessary to prevent wagons which are running for a short distance only on foreign lines from being used for that short distance without any payment which might easily be the case if the wagons were promptly worked and advantage taken of the time allowed free. There are cases in which the thirty-six hours allowed free would be more than enough for the wagons to run from the junction station to destination, and back, and to be unloaded in the meantime, without any payment being made under the Rule as proposed in my draft of the 26th ultimo.

2. The suggestion made in this revised draft would be a simple way of remedying that difficulty in the Rule as it was previously proposed.

3. I beg to ask for your consideration of the proposals now made as in substitution of those made in the draft of 26th August, and I hope to be favored with your views at your early convenience.

Draft dated the 30th September 1890. Great Indian Peninsula railway.

Payment for use of other company's wagons.

13 a. The charge for each coaching vehicle running on the line of another railway shall be seven annas and three pies per vehicle per hour on the standard gauge, and three annas and four pies per hour on the metre-gauge, both on the outward and return journey, except that no charge shall be made on coaching vehicles not used for ordinary traffic unless underload.

14 a. The charge for each standard and metre-gauge goods vehicle, while running on the line of any other railway, shall subject to the minimum hereinafter mentioned, and after deducting the time allowed free under clause (a) of Regulation 16, be at the rate of one and three-quarter pies per ton per hour for all the time that the wagon is actually detained off the parent line on each Foreign line over which it runs.

NOTE.—This charge is reckoned upon the present basis, namely six miles per hour at three-fifths of a pie a ton a mile, which, reckoning for both outward and return journey, gives one and three-quarter pies per ton per hour.

This payment shall be reckoned upon the weight of goods loaded in the wagon on its being handed over by the parent line.

(b) In order to provide for payment for wagons run for short distances on Foreign lines the minimum payment under these rules is, in all cases, to be for

the time actually occupied in running the distance from the junction station to destination and back, without where the minimum comes into force, any free allowance at destination, or at any intermediate stations.

15 (a). Standard gauge coaching vehicles shall be allowed free of demurrage one hour for every twelve and a half miles, and metre-gauge coaching vehicles shall be allowed one hour for every eight miles run on Foreign lines; and for both gauges twenty-four hours extra at destination.

(c) Except as provided in Regulation 19, demurrage shall be charged at the rate of eight annas per hour for standard gauge vehicles, and four annas per hour for metre gauge vehicles on each coaching vehicle detained beyond the times named in clause (a) of Regulation 13, and clause (b) of this Regulation, and in Regulation 20.

16 (a) Goods vehicles shall be allowed free, the following times namely:—

- (1) Thirty-six hours for unloading at destination.
- (2) Twenty-four hours for reloading at destination.
- (3) Twelve hours at any intermediate station for unloading, and
- (4) Twelve hours at any intermediate station for reloading.

These allowances of free times shall be deducted from the time actually occupied before the calculation of the charges for the use of the wagon under the provisions of clause (a) of Regulation 14.

17. Demurrage shall be calculated separately on the time occupied in passage of vehicles over each line in succession and when incurred shall be paid by the line on which it was incurred to the line to which the vehicles are handed over. The demurrage payment so received shall be paid over, together with any additional demurrage that may have accrued, to the next railway, and so on in succession at each junction, until the vehicle is returned to the parent line to whom all demurrage payments are to be handed over. An intermediate line is, however, to be entitled to reckon the outward and return journeys as one, any time saved on either of such journeys being deducted from the time lost on the other such journey, the demurrage due for the balance of the time lost being paid for by such intermediate railway.

This regulation applies to all coaching as well as goods vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not.—

Example—

Railway A (parent line) hands a wagon to railway B, railway B hands it to railway C having gained two hours, and there is therefore no demurrage incurred. Railway C hands the wagon to railway D, five hours having been lost on railway C and pays five hours demurrage to railway D.

Railway D (which is the same as railway B) hands it to railway E on the return journey, having lost one hour and has therefore no demurrage to pay as railway B gained two hours on the outward journey, or,

If in such a case railway D (same as railway B) loses six hours, then railway D will pay to railway E for four hours, being the balance of the time saved and lost on railway B D on the outward and return journey. Railway E hands it over to railway A (parent line) having saved two hours, railway E will therefore have no demurrage to pay, but will hand over what it has received from railway B D, namely five hours incurred by railway C and either nothing from railway B D or four hours from railway B as the case may be.

The wagon will be back on parent line either two hours late, with payment for five hours demurrage, or eleven hours late with payment for nine hours demurrage.

Regulation 2, clause (c) to be altered to the following, namely:—

Fraction of a mile shall be charged as a mile; and parts of an hour shall be charged as an hour.

No. 6825 E. 2942, dated 30th April 1891.

From—The Agent and Manager, Madras railway,

To—The Secretary, Railway Conference.

Method of calculating demurrage charges. Conference Regulations.

With reference to your letter No. 370* of the 21st instant and to previous correspondence, I have the honor to inform you that we await a reply on this

*No printed.

subject from the General Traffic Manager of the Great Indian Peninsula railway to a letter addressed to him by this Company's Traffic Manager on the 18th of October last. I enclose you a copy of the letter to which no reply has yet been received.

No. C. 3—1213 A. & M., dated 18th October 1890.

From—The Traffic Manager, Madras railway,

To—The General Traffic Manager, Great Indian Peninsula railway.

Conference Regulations (No. 17). Your No. 25582 of the 30th ultimo.

Our Chief Auditor writes on the 7th instant—

"The principal objection to the method of calculating mileage as laid down in revised clause 14 (a) appears to be that a railway should be paid for the wear and tear of its rolling-stock used over foreign railways, whereas it will be possible for a foreign railway to have the use of wagons belonging to another railway for short distances without making any payment for mileage. For instance, it will be quite easy for the Great Indian Peninsula railway to work Madras railway stock to, say Wadi and back to Raichur within the 36 hours allowed free for unloading.

"2. The mileage rate of $1\frac{1}{2}$ pies per ton per hour is based upon an outward load only, and would appear to be not sufficiently remunerative in the event of loading on the homeward journey to a point short of the parent line."

And again on the 11th instant, after perusing the draft enclosed with your letter of the 30th ultimo—

"Mr. Conder recognises the difficulty pointed out in the first paragraph of my letter of the 7th instant, No. S. 919, but I cannot see how his proposition can be taken as clearing up the question, for he does not in any way explain when the minimum comes into force.

"He states that the minimum payment is to be for the time actually occupied in running the distance from junction to destination and back without (when the minimum comes into force) any free allowance whatever at destination or intermediate stations.

"I take this to mean that, if a wagon ran straight from junction to destination and back in 35 hours, mileage will be charged for the whole 35 hours, but, supposing they take 37 hours, does the allowance of 36 hours come in then or when?

"Taking it all round it would certainly seem better to charge mileage as laid down in the Conference rules.

"Demurrage.—I observe the error is still made of not allowing any free time for the distance run before demurrage is claimable. I understood you to say yesterday that you were of opinion that no such allowance was intended to be made, but I think the following instance will show that an allowance must be made.

"An East Indian railway 10-ton wagon runs from Jubbulpore to Jalarpet and back, say 2,550 miles; 1,754 on the Great Indian Peninsula and 796 on the Madras railway. At 6 miles an hour (the recognised rate) it would take 425 hours to do the distance, and if no allowance is to be made as above, the East Indian railway would receive demurrage on 425 minus 36 hours (allowance at destination)=389 hours at $7\frac{1}{2}$ annas=Rs. 182-5-6, of which we should have to pay for 132 $\frac{1}{2}$ hours—36 hours at destination=96 $\frac{1}{2}$ hours=Rs. 45-5-0, and the Great Indian Peninsula would pay for 292 $\frac{1}{2}$ hours=Rs. 137-0-6, and in both cases in addition mileage at the rate of Rs. 1-1-6 per hour on the time run under full load."

Have the East Indian, Oudh and Rohilkhand, Bombay, Baroda and Central India, and North-Western railways agreed to your proposal?

No. 439 M., dated 25th April 1891.

From—The Manager, Oudh and Rohilkhand railway,

To—The Secretary, Railway Conference.

With reference to your endorsement No. 339 of the 2nd September last, forwarding copy of your letter No. 338 of the same date, regarding the method for calculating demurrage charges, I have the honor to forward herewith copy of a letter No. V.M. 45 $\frac{1}{2}$ of the 1st November 1890, from Mr. Lightfoot, who was a member of the Conference, expressing his opinion on the subject.

2. I would add that I approve of proposal No. VII with the addition that Mr. Lightfoot suggests, and in the event of its non-acceptance would be glad if you would favor me with an opportunity of expressing my views on any other proposal which may be brought forward.

No. V.M. 45 $\frac{1}{2}$, dated 1st November 1890.

From—The Auditor, Traffic Branch, Oudh and Rohilkhand railway,

To—The Manager, Oudh and Rohilkhand railway.

In reply to your 1031 A., dated 16th October 1890, I would remark as follows:

The proposal made by the Secretary of the Railway Conference being based on the time lost over each railway in succession does not provide for what was considered an important point at the Conference, *viz.*—

Vehicles returned to the parent line by other than the exact route received will not, as under the old rules, obtain the benefit of any savings of time on the return journey over the same railways. To meet this case, I would suggest the following addition to his proposal No. VII, in which case it would probably be generally accepted:

"A railway which has incurred or paid demurrage on a vehicle on its outward journey shall be entitled to set off against such liability or payment any time it may save in returning such vehicle to the parent line, whether it be returned by the same or a new route."

No. ⁸³⁴₄₄₆₆, dated 24th July 1891.

From—The Agent, Indian Midland railway,
To—The Secretary, Railway Conference.

With reference to your letter No. 338 of the 2nd September 1890, regarding Regulation No. 17 passed at the Railway Conference of 1888, I have the honor to forward herewith a printed copy of a letter No. ^{541G}₉₇₂ T. A., dated the 11th February last, from the Auditor of this railway to my address, in this matter.

2. A copy of the letter No. ^{541L}₃₅₉₄ T.A. of the 10th June 1890, referred to in paragraphs 15, 18, 20, and 27 of the Auditor's letter now sent forward, has already been submitted to you under cover of my letter No. ^{455A}₃₉₁₄ of the 20th June 1890.

3. It only remains for me to say that I concur generally in the views expressed by our Auditor, and consider that proposal No. II is, on the whole, the best calculated to give the desired results, and to secure equitable treatment to this and other lines. Failing its adoption, I should prefer proposal No. I to the others.

No. ^{541G}₉₇₂ T.A., dated 11th February 1891.

From—Auditor Indian Midland railway,
To—The Agent and Chief Engineer, Indian Midland railway.

Your No. ^{455A}₅₆₆₉ of 16th September last forwarding copy of further printed letter, No. 338, from the Secretary, Railway Conference, regarding Regulation No. 17, passed at the Railway Conference of 1888.

It is hardly necessary to say that the further consideration of this question is approached with every desire to respond to the President's appeal and co-operate in arriving at an early and definite decision.

2. At the same time it will be recognized that the paramount duty of each administration is to carefully examine and weigh the probable bearing and effect of the several proposals upon the interests of its own line.

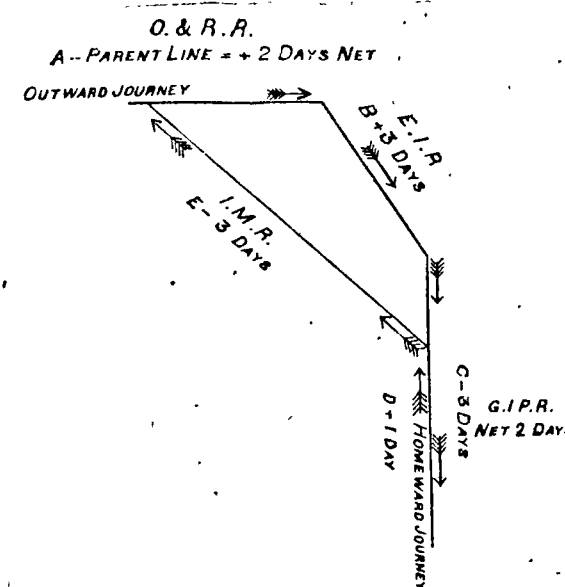
3. In the following paragraphs the proposals which are summarized in the letter from the Secretary are therefore examined in some detail, in order to show the grounds for the conclusions arrived at and to assist in a final and right decision.

PROPOSAL NO. I.

4. This, after providing that the parent line shall be paid demurrage for the net time a vehicle may be absent over the free time allowance for the whole journey from start to finish stipulates that the difference between the gross and net demurrage shall be rateably divided among the lines which complete their portion of the journey in less than the free time allowances to which they may be entitled.

5. In this, as in the other proposals, criticism will of course be directed to the suggestions in regard to the demurrage beyond that to which the parent line is entitled to be paid for, and these suggestions will be more readily followed if each of the proposals be illustrated by means of a diagram.

DIAGRAM ILLUSTRATING PROPOSAL NO. I.



SUMMARY.

	+	-
Days.	Days.	Days.
B (East Indian railway)	3	...
C & D (Great Indian Peninsula railway)	...	2
E (Indian Midland railway)	...	3
Total	3	5

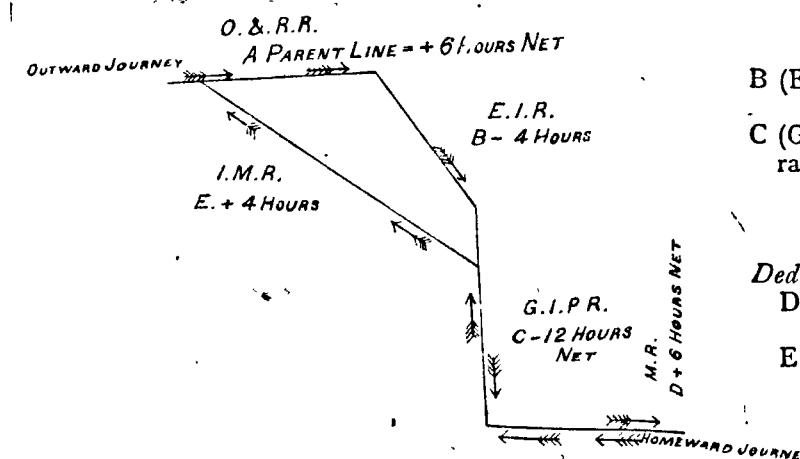
Net excess 2 days over free allowance payable to parent line. But, in addition, under this proposal, the East Indian railway, having gained 3 days on its portion of the run, would be paid the balance of the excess time lost by the other two lines, or 3 days.

NOTE.—Lines C and D are the same. No case suggesting itself in which vehicles would make a circuit without passing more than once over the same line or any part of it.

PROPOSAL NO. II.

6. This, after providing that the parent line shall be paid demurrage due on the net time a vehicle is absent over the free time allowance for the whole journey from start to finish, stipulates that the saving accruing on lines completing their portion of the journey in less than the free time allowance to which they may be entitled shall be rateably divided among the lines which may have lost time.

This is illustrated by the following diagram:—



SUMMARY.

	Hours.
B (East Indian railway)	4
C (Great Indian Peninsula railway)	12
Gross demurrage	16
Deduct Saving—	
D (Madras railway)	6
E (Indian Midland railway)	4
Net demurrage... payable to parent line.	6

STATEMENT OF ADJUSTMENT.

	Hours.	Hours.	Hours.
B (East Indian railway)—			
To demurrage incurred	4		
By proportion, $\frac{4}{10}$ of 10 hours, saved on Madras and Indian Midland railways	2½		
Net debit	1½		
C (Great Indian Peninsula railway)—			
To demurrage incurred	12		
By proportion, $\frac{12}{10}$ of 10 hours, saved on Madras and Indian Midland railways	7½		
Net debit	4½		
Total net debit to lines losing time	6		
(Oudh and Rohilkhand railway) parent line to get credit for net demurrage		6	
Total		6	

PROPOSAL NO. III.

7. Is the same, word for word, as Rule 17 passed by the Conference of 1888; but while the example quoted with that rule showed an adjustment of account, by which a rebate on time saved would only be given in case a previous line had incurred demurrage, and the parent line would receive payment for the net demurrage accruing, but would not pay for time saved, the second of the examples now given would change this mode of adjustment and each line over which a vehicle ran, including the parent line, would pay or be paid according as there was an excess or saving on the free time allowance for each portion of the journey.

8. This example cannot be said to be inconsistent with the wording of the rule, which, shortly put, provides that each line in succession shall pay to or be paid by the line to which the vehicle is next handed over till return to the parent line, the amount accruing for demurrage or for time saved as the case may be.

The example is illustrated by the following diagram:—

DIAGRAM ILLUSTRATING PROPOSAL NO. III.

SUMMARY.

Showing adjustment according to this proposal.

Dr.	Hours	Cr.	Hours
Great Indian Peninsula railway (line B & E) for gross time lost on this portion of the journey ...	46	Madras railway (line C and D) for time saved on this portion of the journey ...	32
East Indian railway (line A, parent line) for difference between time lost on the Great Indian Peninsula railway and that saved on other portion of the through journey ...	5	Indian Midland railway (line F) for time saved on this portion of the journey ...	19
	51		51

PROPOSALS IV AND V.

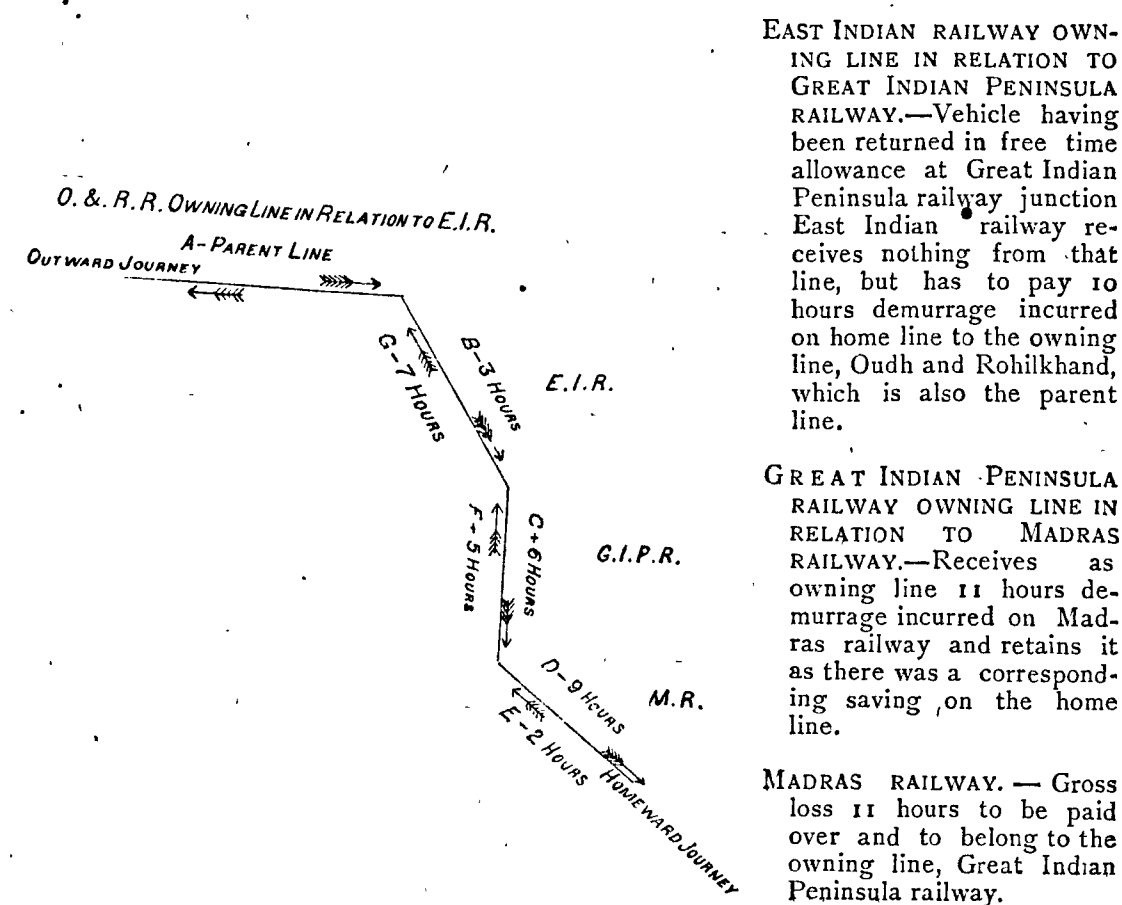
9. Neither of these has been explained by an example, but they appear to be identical, though the second clause of paragraph 1 of No. IV makes it somewhat more explicit than No. V. The latter is, however, the precise wording of the rule proposed in Resolution No. 24 of the Conference of 1888,—the latter becoming the Rule No. 17, which has been the subject of all this discussion.

10. These rules provide that whatever demurrage is incurred shall belong to and be paid over to the owning railway; and in this connection it is well to quote here the definition of the "owning line," which is given in the Conference regulations:—

"Owning line means the line at whose junction the vehicle was received on the outward journey, or the line to which it is returned on the homeward journey."

11. It should be further noted that, as regards vehicles returned by a different route, it is provided that the running from the point where the divergence from the route followed on the outward journey commenced shall be separated from the other portion of the journey and adjusted by itself, but according to the same rule as described above.

12. The following diagram then illustrates the application of these rules as understood in the absence of examples:—



SUMMARY.

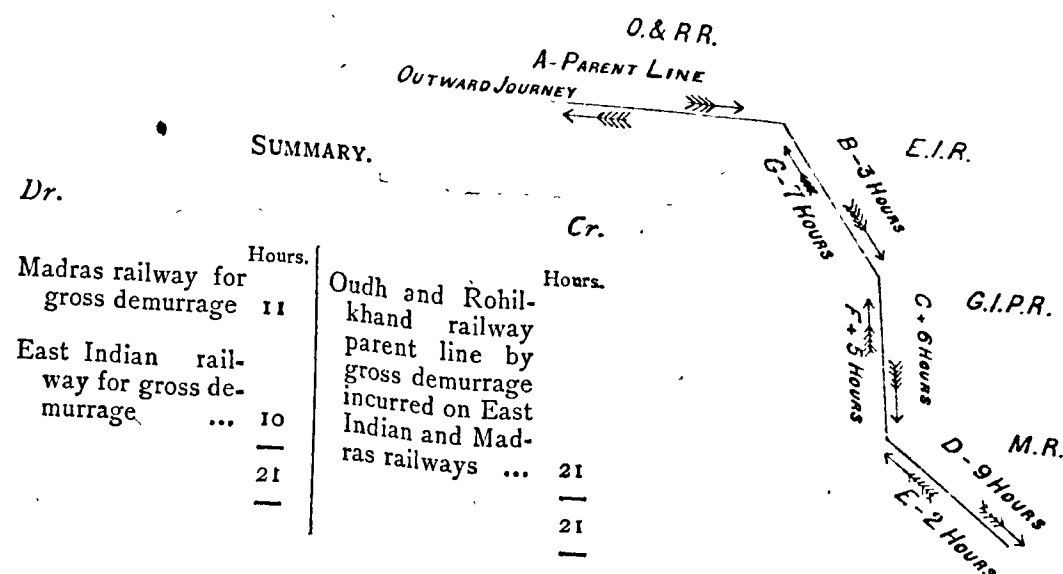
Dr.	Hours.	Cr.	Hours.
Madras railway for 11 hours demurrage ...	11	Great Indian Peninsula railway demurrage received as owning line from Madras railway ...	11
East Indian railway for 10 hours demurrage ...	10	Oudh and Rohilkhand demurrage received as owning and parent line from the East Indian railway net demurrage for the whole journey ...	10
	21		21

PROPOSALS VI AND VII.

13. Are, like IV and V, apparently identical, and the difference between the two groups of proposals lies in this that while the latter provide that any demurrage incurred shall belong to and be paid over to the "owning" line, the former propose that it shall all be paid to the "parent" line, i.e., the line to which a vehicle belongs as defined in the Conference Regulations.

14. The application of this proposal is illustrated by the same diagram as given in the case of proposals IV and V.

DIAGRAM ILLUSTRATING PROPOSALS VI AND VII.



The net demurrage was as before only 10 hours, but no rebate or deduction is made for the 11 hours gained in the running on the Great Indian Peninsula railway.

15. The objection to proposal No. I is stated in paragraph 11 of this office printed letter No. 541 T.A.,* dated 10th June last, namely, that time saved is an accident due to the conditions of general traffic working rather than a service for which payment should be made in addition to the earnings accruing from the load, and in the letter from the Secretary, paragraph 4, it has been further pointed out that "it appears anomalous that a premium for time saved can only be obtained in cases in which other lines were in default when the vehicle was received."

16. Under such a rule the Indian Midland railway would certainly be at a disadvantage compared with the Great Indian Peninsula and East Indian railways, for the latter with their numerous trains are in a position to work vehicles back frequently to Indian Midland railway junctions, while the Indian Midland railway is not at present and is not likely to be for some time to come in the same position for taking them on as frequently.

17. Proposal No. I is not therefore, from an Indian Midland railway point of view, an equitable one.

18. As regards proposal No. II this is apparently the proposal that was made in this office letter No. 541 T.A. of 10th June last, and the further remarks in reference to it will therefore be deferred until the other proposals have been commented upon.

19. The objections to proposal No. III are very clearly pointed out in paragraph 3 of the Secretary's letter. As has been previously remarked, to make the parent line pay for the early return of its own vehicles would alter entirely the character of the demurrage penalty rule.

20. Proposals IV and V should be coupled, and in regard to these it may be repeated that they have already been rejected, having been accepted in the first instance as Resolution No. 24 of the Railway Conference of 1888, but on

further consideration superseded by Resolution No. 29. The unequal way in which they would operate is shown by the illustration given above and can be further seen by reference to paragraph 16 of this office printed letter No. 541 T.A. of 10th June last.

21. Proposals VI, and VII, are practically identical, and it is VII, that recommends itself to the President of the Conference.

22. According to this proposal the parent line would receive payment for the gross demurrage on all lines, and, in the case which has been taken to illustrate the working, would be paid 21 hours demurrage, though the demurrage actually incurred in excess of the total free allowance for the whole journey is only 10 hours.

23. Such a rule would override the provisions of Rules 15 and 16, which have not apparently been questioned.

24. The difficulty which has arisen has been to frame a rule for carrying out in an equitable manner the principles agreed upon by Rules 15 and 16; and if this is admitted to be so, it does not appear that proposal No. VII, would meet the case either in spirit or in fact.

25. Proposal No. VII, is recommended for its simplicity, but it would involve the parent line in a great deal of difficulty in checking the demurrage accounts. It provides that demurrage shall be calculated separately on each line, and this would necessitate the submission to, and checking in the Audit Office of the parent line of separate and distinct accounts of the running over each line.

26. Compared with proposal No. II, which is the one put forward by the Indian Midland railway as the solution of the difficulty, this proposal No. VII, which is recommended does not appear to involve less work for the Accounts Department, and the results, having in view the provisions of rules 15 and 16 which represent the views of Railway Conference as to the claims of the parent lines, do not appear so equitable to all the lines, considering the varying circumstances that have to be taken into account, as those under proposal No. II.

27. A further very careful consideration of this matter, therefore, confirms the conclusion stated in this office letter No. 541 T.A. of 10th June last, that the fairest adjustment would be that therein proposed and according to which, as summed up in proposal No. II of the letter No. 338, from the Secretary Railway Conference:—

"The parent line shall be paid the demurrage due on the time vehicles are absent over the free time for the whole journey, which demurrage shall be charged rateably among the lines losing time."

No. 3120, dated 29th January 1892.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—The Secretary, Railway Conference.

With reference to your Circular letter No. 338 of the 2nd September 1890, addressed to the Agent of this Railway, and to other Railways, as to Conference Regulation No. 17, I have the honor to say that, as you are aware, I made a proposal to all the different railways for an entirely fresh basis of calculation, and I beg to enclose, for your information, a copy of a letter No. 2848 of the 27th instant, and its enclosure which I have addressed to them.

2. No doubt this will reach you in due course from the Agent.

No. 2848, dated 27th January 1892.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—All railways.

The modified proposal about rules for demurrage sent under my memorandum No. 25582* of 30th September 1890 has been, to some extent, considered by the various railways concerned, and I send, for general information, a Memorandum showing the purport of what each railway has said on the subject.

2. It will be known that Regulation 17 of the Conference of 1888 has not been adopted and that, at present, demurrage questions are settled under the rules which were in force, before that Conference.

3. Upon the whole I do not feel discouraged at the way in which my proposal of 30th September 1890 has been received. I expected that there would be objections, and that omissions would be found in the draft that I prepared, but I do not think any of the objections are of such a nature as to prevent the ultimate adoption of the proposal, when, after further consideration and discussion, they have been either answered, or the rules as proposed, so altered or modified as to meet those objections.

I do not propose, at present, to deal with those various objections. I agree with those who have expressed the opinion that there is not much chance of such a matter as this being settled by correspondence, and I therefore suggest that the whole question be referred to a further meeting of the Conference. But in doing this, I wish to place briefly on record one or two points which seem to me to show that the proposal I have made is based upon principles which might be accepted.

4. I have always been of the opinion that the use of other company's wagons on a railway should be on such fair terms, as do not involve a serious burden on the railway using them, and I am of the opinion that a payment for time, is a better basis than a payment for miles run. It is very difficult, with the latter, to make allowance for prompt working, while in the former, that is done in what seems to be a satisfactory way. I cannot think that it was ever intended or that it should be permitted, that railways should make a large profit out of the use of their wagons upon other lines. And, finally, I think the rules should provide an inducement to every railway that receives wagons under load from another railway, to work such wagons back to the owning railway as quickly as possible, and that the railways on to which they run, should not be required to do more than pay a reasonable sum for the time that wagons are kept off the owner's line.

5. I am sending a copy of this communication to all the railways and hope that upon further consideration, and, as all the points raised upon my proposals can, I feel sure, be easily met, the question will not be very difficult of settlement if a general discussion is held in regard to it.

6. With reference to the seven different proposals that are mentioned in the letter No. 338 of the 2nd September 1890 signed by the Secretary to the Conference, which was sent to all railways, it seems to me that proposal number one, is the best and fairest, but I think that that proposal should be modified and should read as follows; namely—

The parent line shall be paid the demurrage due on the time vehicles are absent over the free time, for the whole journey, and any demurrage incurred in excess of that payable to the parent line shall be rateably divided among the lines which saved time.

But if a vehicle is returned to the parent line, before the time, allowed free, has expired, the parent line shall not be required to make any rebate of demurrage upon the time so saved.

And no railway shall be required to pay more for demurrage than it has actually incurred on its own railway.

Example number one.

Railway A (parent line) hands a wagon to railway B.

Railway B hands it to railway C, having gained three days.

Railway C hands the wagon to railway D, having lost three days.

Railway D hands it over to railway E, having gained one day.

Railway E hands it over to railway A (parent line) having lost three days.

Therefore railway A (parent line) will receive $+3-3+1-3=2$ days demurrage; but as the gross demurrage accruing is six days, namely three days on railway C, and three days on railway E, the difference between the gross demurrage and the two days paid to the parent line (railway A) that is four days, would be rateably (that is, in proportion to the days saved on each) paid to railways B and D.

Example number two.

Railway A (parent line) hands a wagon to railway B.

Railway B hands it to railway C, having lost two days.

Railway C hands the wagon to railway D, having gained four days.

Railway D hands it over to railway E, having lost one day.

Railway E hands it over to railway F, having gained three days.

Railway F hands it over to railway A (parent line) having lost one day.

Therefore railway A (parent line) will receive the wagon $-2+4-1+3-1=3$ days before time, and the gross demurrage accruing is four days; namely: two days on railway B, one day on railway D and one day on railway F. The four days demurrage would be rateably (that is in proportion to the days saved on each) paid to railway C and E and the parent line (railway A) will neither pay nor receive any demurrage.

Example number three.

Railway A (parent line) hands a wagon to railway B.

Railway B hands it to railway C, having gained three days.

Railway C hands it to railway A (parent line) having neither gained nor lost time.

Therefore railway A (parent line) will receive the wagon before time and will neither pay nor receive any demurrage, and railway C, having neither gained nor lost time, will not pay demurrage and will not pay for time saved by railway B. And railway B will not get any payment for time saved.

I think, however, that there are objections to that proposal, partly from the complicated accounts that will be required as also in other ways and that there are, in various ways, stronger objections to all the other six proposals, and as I have already said, I considered time rather than mileage should be the principle adopted in dealing with the question.

7. I shall be much obliged by the favor of an early reply.

Memorandum, dated the 27th January 1892, by Mr. Henry Conder, General Traffic Manager, Great Indian Peninsula Railway.

With reference to the letter No. 25582 of the 30th September 1890,* which I addressed to all railways about Conference Regulation No. 17, as to demurrage, which was rejected, and enclosing a fresh draft, bearing the same date, of what might be considered in regard to the payment for the use of other companies' wagons, the proposals made therein, being substituted for those

made in the draft of 26th August 1890, the purport of the replies which I have received from the several railways, is given below, namely:—

- (1) *Bhavnagar-Gondal-Junagad-Porbandar railway*.—The Traffic Superintendent states that he thinks it probable that the charges for stock running on foreign lines could be considerably simplified by introducing the time system of calculation, instead of mileage, and says that if the proposal meets with general approval, the details will of course require careful consideration.

He also thinks it should be possible on that system to reduce the charge to a fixed rate per hour of capacity of vehicle, from the time of its being handed over to the time of its return, such charge being paid by the lines it may have been running on, in proportion to the time passed on each.

The rules requiring absent vehicles to be replaced by the company to whom they have been lent, should the parent line call for them, would, he thinks, have to be retained as a safeguard against a line being denuded of its stock practically on hire.

- (2) *West of India Portuguese railway*.—The Agent states that the above question will not affect their railway, for their Board of Directors do not consider it advisable for them to accept any General Conference Regulation owing to their line being in foreign territory.

- (3) *Jodhpore railway*.—The Manager states that the arrangements proposed for calculating the time of interchanged vehicles, would prove slightly to the disadvantage of their line on which there is rarely more than one train a day, and wagons which are delivered at the junction by the owning railway, shortly after the departure of the train, have to stand there for nearly a day. He also thinks that the arrangement would largely increase labour in the Audit Office.

He presumes that the reason the charges were originally made on a mileage basis was, that the wear and tear of the wagons which the hirer is to defray was dependent on the distance run, and not on the time taken in running.

- (4) *Rohilkund and Kumaon railway*.—The Assistant Traffic Superintendent states that in the first circular sent to them he observed that under the rules it was quite possible to run wagons on foreign lines, and to have them returned without incurring any charges, but this was rectified to a certain extent by the adoption of clause "B" under the letter No. 25582, but they do not quite understand what is meant by the expression "short distances," and he thinks a limit should be fixed, and asks if there are any limits fixed, or to be fixed, regarding the maximum speed at which a wagon may be run. He asks if it would not be possible to run a train of wagons back to the parent line at a speed of thirty miles an hour.

It appears to him that if, say, thirty Indian Midland railway wagons were booked from Cawnpore to Bombay *via* Itarsi, it would be possible under the proposed rules to run these wagons to Bombay and back to Itarsi without incurring any mileage charge, that is, provided clause "B" is not brought into force, and he cannot see how it could be in such a case, as the distance is 464 miles, not by any means a short distance.

He gives below the time which may be occupied, and the time allowed free in the case referred to above:—

Time allowed on journey Itarsi to Bombay, 464 miles, at an average through speed of 15 miles an hour		Time allowed free per clause 16 (a)	
Hours.		Hours.	
Time allowed on journey Itarsi to Bombay, 464 miles, at an average through speed of 15 miles an hour	30	Unloading at destination	36
Time occupied in unloading	6	Reloading "	24
" " " reloading	6	Unloading at Bhusawal	12
" " " unloading at Bhusawal	6	Reloading "	12
" " " reloading at Bhusawal	6		84
for Cawnpore	6		
Time occupied on return journey at 15 miles	30		
	84		

From the above, the Assistant Traffic Superintendent states that it will be perceived that if special arrangements were made, the charge made against vehicles on a basis of time could be avoided, and he thinks there is no reason why if special arrangements were made the distance from Jabalpur to Bombay and back could not be accomplished within the time allowed under clause 16 (a). In fact he thinks that it would be possible for one railway, the permanent way of which was the best, to run a goods train at thirty-five miles an hour. If such speeds were adopted at any time the system proposed by the Great Indian Peninsula would not be the best to insure equitable charges for vehicles. The mile is a known quantity, and fixing the charges at so much per mile appears to him to be preferable to the time basis principle.

The Rohilkhand and Kumaon railway company, Limited, do not interchange their rolling stock at present, and this question has not been thoroughly considered by their Assistant Traffic Superintendent, who states that if he is wrong in his premises, he should be glad to hear.

- (5) *East Indian railway*.—The Traffic Manager states that there seem to be objections to the proposed rules, which might be overcome when discussed at a Conference; but opinions which he has seen, point to an extreme difficulty in coming to a settlement on the proposal by correspondence. Under the circumstances, he suggests that their consideration might be postponed, and trusts that the Great Indian Peninsula will be able to accept, as a way out of the difficulty, with regard to Conference Regulation No. 17, the proposal 4, in letter No. 338 of the 2nd September 1890, from the Secretary, Railway Conference, as follows:—

"IV. Whatever demurrage is paid by any railway for vehicles of other railways shall belong to and be paid over to the owning railway, demurrage being calculated at each junction on the total time occupied and allowed for the whole journey, from such junction to destination and back. When a vehicle is diverted on the homeward route, demurrage shall, in the first instance, be calculated on the whole journey to destination, and back to the junction at which the vehicle is first diverted from the outward route, in the same manner as if the vehicle had then and there been returned to the parent line. For the diverted portion of the return journey, each line from the junction where first diverted up to the parent line shall account to the line beyond for demurrage on the time occupied and allowed for the whole journey, from the junction where first diverted up to the junction with the parent line."

- (6) *Eastern Bengal railway*.—The Traffic Superintendent states that his Manager is in favour of the question being settled by the general adoption of one or other of the proposals put forward in letter No. 338 of 2nd September 1890, from the Secretary, Railway Conference, to all railways. Their railway, he further states, is in favour of proposals IV. except that in the last line he thinks the words "*the parent line*" should be altered to "*the line beyond*"

He further states that the Great Indian Peninsula proposal would involve a good deal of trouble in recording and calculating the time over each line separately, which is avoided under the above mentioned proposal (IV). There is, he thinks, much to be said in favour of the *supposed* fairness of paying a forwarding railway for saving time, but it must be borne in mind that the present allowance of free time, both for running and for unloading and reloading, has been fixed not as fair averages, but as *maxima*, after which a heavy penal charge is incurred, and wagons usually are and should be returned well within this time.

He also makes out that the Great Indian Peninsula proposals would involve the resettlement of the free allowances on a new basis, *viz.*, on a *fair average* instead of a *maximum time*, and it is therefore thought that they might be deferred for full discussion at another Conference.

On the whole the Eastern Bengal railway are disposed to think that the present system is the best; but a point which will certainly call for amendment in the future is that of an intermediate line over which a wagon runs for a short distance only, and in which the short running time allowed is nearly all absorbed in unavoidable delays at junctions. This point the Traffic Superintendent, Eastern Bengal state railway, begs to observe might receive attention when considering the whole subject.

- (7) *Bombay, Baroda and Central India railway*.—The General Traffic Manager states that (1st) the parent line would lose what it now receives for the use of a wagon when it carries a back load either to a station short of the

junction or past the junction, or by an alternative route to the home line; (2nd) that the maximum which the parent line would receive for the use of its wagon would be what it now gets for running under load one way only, and it would receive that maximum only if the wagon were absent *all* the time which is now allowed for running, loading, and unloading. If the time absent were reduced, the payment to the parent line would be more than proportionately reduced; (3rd) that the free allowance for loading and unloading is so liberal, and actual time employed in these operations, can in practice be so much less than that allowed, that running might to a great extent be done in full time.

He states that the Great Indian Peninsula have now suggested an addition to clause 14, which is intended to meet to some extent the last objection, that is, to prevent its being possible for the line using a foreign vehicle to get the use of it free by running it out and home again within the time allowed for station operations. But even with this correction he thinks the result would still be, that the parent line would get less for the hire of its wagon than it does now in all cases in which it comes back under the time allowed, and that it would get nothing for any back loading; and he states he is not prepared to recommend any direct or indirect lowering of the present charges for the use of foreign stock, which he considers already low enough.

But, apart from this consideration, the proposed system of charging by time appears to him to be essentially faulty, for the measure of the service performed by a vehicle is the distance it has travelled under load, and he thinks payment should be made accordingly.

As regards Regulation No. 17, the General Traffic Manager, Bombay, Baroda and Central India railway, proposes to deal with that separately in connection with the circular letter No. 338 of the 2nd September 1890, from the Secretary to the Railway Conference of 1888.

(8) *Bengal-Nagpur railway*.—The Traffic Manager states that he has looked into the matter very thoroughly, and their Auditor has also given him the benefit of his opinion on the subject, and he states that if the proposal were to come into force it would mean a great loss to their company as well as other companies situated as they are, and who derive a certain amount of income by the running of wagons on other companies' lines; in fact, with their half-made railway, if the proposal had been in force from August 1889 to July 1890, approximately they would have earned Rs. 33-7-4 less by their wagons.

He thinks the proposal will benefit only such a company as the Great Indian Peninsula, over which traffic flows from all parts and which has a large quantity of free time for unloading, which can also be used for working back wagons to the parent line.

He imagines the only way to make the Great Indian Peninsula proposal acceptable to companies like the Bengal-Nagpur would be to allow no free time at all for unloading. There are other objections as well, which he thinks he need not mention at present.

(9) *South Indian railway*.—The Traffic Manager states that he had previously received a communication on this subject from the Director-General of Railways, to which he replied, stating that he was in favour of Rule VII, being adopted, but that he would not object to the introduction of any other rule, provided the majority of the railways were in favour of it.

(10) *Madras railway*.—The Traffic Manager states that their Chief Auditor writes as follows only:—

"The principal objection to the method of calculating mileage, as laid down in revised clause 14 (a), appears to be that a railway should be paid for the wear and tear of its rolling stock used over foreign railways, whereas it will be possible for a foreign railway to have the use of wagons belonging to another railway for short distances, without making any payment for mileage. For instance, it will be quite easy for the Great Indian Peninsula railway to work the railway stock to, say Wadi and back to Raichur within the 36 hours allowed free for unloading!

"2. The mileage rate of 1½ pies per ton per hour is based upon an outward load only, and would appear to be not sufficiently remunerative in the event of loading on the homeward journey to a point short of the parent line."

The Chief Auditor, Madras railway, again writes, after perusing the Great India Peninsula further draft, that—

"Mr. Conder recognises the difficulty pointed out in the first paragraph of my letter of the 7th instant, No. S-919, but I cannot see how this proposition can be taken as clearing up the question, for he does not in any way explain when the minimum comes into force."

"He states that the minimum payment is to be for the time actually occupied in running the distance from junction to destination and back, without (when the minimum comes into force) any free allowance whatever at destination or intermediate stations."

"I take this to mean, that if a wagon ran straight from junction to destination and back in 35 hours, mileage will be charged for the whole 35 hours; but supposing they take 37 hours does the allowance of 36 hours come in then, or when?"

"Taking it all round, it would certainly seem better to charge mileage as laid down in the Conference Rules."

"*Demurrage*.—I observe the error is still made of not allowing any free time for the distance run before the demurrage is claimable. I understood you to say yesterday that you were of opinion that no such allowance was intended to be made, but I think the following instance show that an allowance must be made."

"An East Indian railway 10-ton wagon runs from Jubbulpore to Jalarpur and back, say 2,550 miles, 1,754 on the Great India Peninsula and 796 on the Madras railway. At 6 miles an hour (the recognized rate), it would take 425 hours to do the distance, and if no allowance is to be made as above, the East Indian railway would receive demurrage on 425 minus 36 hours (allowance at destination)=389 hours at 7½ annas=Rs. 182-5-6, of which we should have to pay for 132½ hours—36 hours at destination=96½ hours=Rs. 45-5-0, and the Great Indian Peninsula would pay for 292½ hours=Rs. 137-0-6 and in both cases, in addition, mileage at the rate of Rs. 1-1-6 per hour on the time run under full load."

The Traffic Manager, Madras railway, asks if the East Indian, Oudh and Rohilkhand, Bombay Baroda and Central India, and North Western railways have agreed to the Great Indian Peninsula proposal.

(11) *Indian Midland railway*.—The General Traffic Manager says that the Agent of that railway, in his reply on the subject, considers—

"That proposal No. 2 is, on the whole, the best calculated to give the desired results and to secure equitable treatment to this and other lines. Failing its adoption, he should prefer proposal No. 1 to the others."

(12) *Oudh and Rohilkhand railway*.—The Manager states—

"1. Mr. Conder's proposals involve the reopening of rules other than the one in dispute, as they contain modification of mileage as well as demurrage charges."

"2. It is doubtful whether the proposed change on the mode of charge would not tend to increase the speed of goods trains and thereby seriously increase the cost of repairing vehicles."

"3. But it may be also argued that Mr. Conder's proposals being based on existing time allowances will not affect the speed of trains."

"4. If this view be adopted, Mr. Conder's proposals regarding mileage amount only to the adoption of the Conference Rules of 1888 in a somewhat different form."

"5. As regards demurrage, the only points on which Mr. Conder's present proposals practically differ from the Conference Rules of 1888 are as follows:—

Addition to Rule 17.

"(a) An intermediate line is, however, to be entitled to reckon the outward and return journeys as one, any time saved on either of such journeys being deducted from the time lost on the other such journey; the demurrage due for the balance of the time lost being paid for by such intermediate railway."

"(b) To whom (i.e., the parent line) all demurrage payments are to be handed over."

Omission from Rule 17.

"Less rebate of demurrage based on the time saved through expeditious working; or,

"6. It would therefore appear that if these alterations be made to Conference Rule 17 of 1888, Mr. Conder's views may be met without reopening the discussions on the mode of calculating mileage charges."

"7. I would consequently suggest that Mr. Conder be asked to modify his proposals accordingly."

"8. I, however, think that the proposed addition (b) to rule 17 would be better added to rule 26 as in the old rule of 1882."

"9. I have not fully examined Mr. Conder's mileage rates, but I do not think they will meet all cases, more especially those of vehicles of large capacity, and as their discus-

sion will be sure to cause considerable delay, I again strongly recommend that he should now deal with demurrage only."

(13.) The North-Western railway state that they prefer arrangement No. VII, as proposed by the Secretary, Railway Conference, in his letter No. 338, dated Simla, the 2nd September 1890.

No. 34-R,
1514, dated 5th February 1892.

From—The Secretary to the Agent, Great Indian Peninsula railway,
To—The Secretary, Railway Conference.

*Not printed.
† Vide pages 44 to 50 ante. In continuation of my No. 604* of the 15th ultimo, I now have the pleasure to forward you a further letter and accompaniments† from Mr. Conder, our General Traffic Manager, to the Managers of the several railways interested in this question, suggesting that as there is little hope of a consensus of opinion by correspondence, the subject had better be referred to a Conference.

No. 6825,
1315, dated 22nd February 1892.

From—The Acting Agent and Manager of the Madras railway,
To—The Secretary, Railway Conference.

‡Not printed. IN reply to your letter No. 399,† dated 9th October 1891, regarding the calculation of demurrage charges, I have the honour to inform you that none of the suggested methods of changing the rule having been accepted, it is not proposed at present to interfere with the existing system.

No. 8, dated 5th April 1892.

From—The Secretary, Railway Conference,

To—The Agents, Bombay, Baroda and Central India, East Indian, Great Indian Peninsula, Southern Mahratta, and South Indian railways; the Agents and Chief Engineers, Bengal and North Western, Rohilkhand and Kumaun, Indian Midland, and Bengal-Nagpur railways; the Agents and Managers, Madras, and His Highness the Nizam's Guaranteed state railways; the Managers, North Western, Oudh and Rohilkhand, and Eastern Bengal state railways; the Managers and Engineers-in-Chief, Bhavnagar-Gondal-Junagarh-Porbandar, and Burma state railways.

In my letter No. 338, dated 2nd September 1890, seven different proposals were put forward for the modification of Regulation No. 17 passed at the Railway Conference of 1888, and the several railways, parties to the Conference, were asked to record their opinions as to which proposal was considered most suitable for general adoption.

2. I am now directed to inform you that the replies received to the above quoted letter show that a large majority of the railway administrations are in favour of the adoption, as a tentative measure, of proposal No. VII. A suggestion, however, has been made that this proposal should be amended so as to read as follows:—

"Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and, when incurred, shall be paid by the line on which it was incurred to the parent line.

"This regulation applies to all vehicles, whether full or empty, and whether the return journey be by the same route as the outward journey or not."

"When, however, a railway has incurred or paid demurrage on a vehicle on its outward journey, such railway shall be entitled to set off against such liability or payment, any time it may save in returning such vehicle to the parent line, whether it be returned by the same or a new route."

3. I am to say that this proposal, as now modified by the addition shown above in italics, appears to the President to be reasonable, and I am, therefore, able to make a general revision of the rules bearing on the question of calculating demurrage charges.

Synopsis of opinions on the rule for calculating demurrage charges, circulated with Secretary, Railway Conference's letter No. 8, dated 5th April 1892.

Eastern Bengal state railway ..	The Manager is of opinion that what is necessary for the parent line to know in the case of stock interchanged is the date on which the wagons or vehicles will be returned and be again available for use on the parent line; and that it is undesirable for the parent line to make revenue from demurrage on stock interchanged. That in this view proposal IV appears preferable to No. VII, inasmuch as when demurrage has accrued, the owning line has a direct interest in making up time. As an ad interim settlement of the case, he accepts modified rule. VII (<i>Vide</i> letter No. 1170-M. and enclosures below.)
Bombay, Baroda and Central India (including Rajputana Malwa) railway.	The Agent accepts the modified rule, provided other railways agree to adopt it.
Madras railway ...	The Agent says so far as his company is concerned, he agrees to accept the modified rule.
Bengal and North Western railway	The Agent and Chief Engineer agrees to the addition to the rule shown in italics.
Nizam's Guaranteed state railway ...	The Agent and Manager agrees to the adoption of the proposal.
Oudh and Rohilkhand railway ...	The Manager says that the regulation as modified has been accepted and adopted from 1st May 1892.
South Indian railway ...	The Agent accepts the modified rule.
Bhavnagar-Gondal-Junagarh-Porbandar railway.	The Manager and Engineer-in-Chief says no reply is necessary, as his railway does not interchange stock with other lines.
Great Indian Peninsula railway ...	The Agent says that he is prepared to accept, as a tentative measure, the proposal put forward, provided other railways accept it also. He is however of opinion that the whole question should be reconsidered, as it affects the Great Indian Peninsula railway even more than any other railway.
Bengal Nagpur railway	The Agent accepts, as a tentative measure, the modified rule.
Indian Midland railway	The Agent accepts the modified rule as a tentative measure, but thinks that for it to work satisfactorily, the East Indian and North Western railways should adopt the rule.
East Indian railway ...	The Agent states that as there is a diversity of opinion on the subject, it would be better to defer action until the proposed Conference settles the matter.
North Western railway	The Manager is in favour of proposal No. VII, and adds that the addition in italics appears to be reasonable.
Burma State railway ...	The Manager says the point is one which does not, at present, affect the Burma state railway, but that the proposed amendment in italics appears reasonable.
Rohilkund and Kumaon railway ...	The Agent and Chief Engineer agrees to the addition shown in italics.
Southern Mahratta railway	The Agent accepts the modified rule.

No. 1170—M., dated Sealdah, Calcutta, 2nd May 1892.

From—The Manager, Eastern Bengal state railway,
To—The Secretary, Railway Conference.

In reply to your circular No. 8, dated 5th April 1892, I have the honor to state that in my opinion what is necessary for the parent line to know in the case of stock interchanged with other railways is the date on which the wagons or vehicles will be returned, and be again available for use on the parent line; it is, I think, undesirable for the parent line to make revenue from demurrage on stock interchanged.

2. In this view proposal IV appears to me to be preferable to proposal VII (Circular No. 338, dated 2nd September 1890), inasmuch as when demurrage has accrued the owning line has a direct interest in making up time; but, as an ad interim settlement of the case, I am prepared to accept proposal VII as modified.

3. I attach for your information, in connection with this subject, a copy of the marginally noted letter from our Traffic Superintendent, with which I agree generally.

No. G—^{397-B}/₁₄, dated 5th April 1892.

No. G—^{397-B}/₁₄, dated Calcutta, the 5th April 1892.

From—The Traffic Superintendent, Eastern Bengal state railway,
To—The Manager, Eastern Bengal State railway.

Mileage and demurrage rules.

* Vide page 44 ante.

Great Indian Peninsula Railway letter No. 2848 of the 27th January 1892, attached.*

It seems to me that what is of real importance to a railway which interchanges large numbers of vehicles with other railways is to have a reasonable time fixed for the return of its vehicles and to be able to reckon on their punctual return. I disagree with the postulate that it is of the first importance to a railway to get its vehicles back as quickly as possible. This is true only when the quickest possible time is fixed as the normal time. It is, however, of the first importance to a railway to know what stock it will have available for a given traffic; and this is best secured by fixing a reasonable time for the return of stock and working to it as closely as possible.

2. The rule which is most likely to achieve this end is that which in respect of demurrage ignores any special rights or claims of the "parent" line. Each railway in succession, as it makes over an outward vehicle at the junction, becomes as regards the railway to which the vehicle is made over the "parent" line. Each railway assesses and collects or pays its own demurrage. There is no premium on, or other inducement to, specially fast running, except when it is of real importance to the original "parent" line; that is, when demurrage has already accrued, and, if the running of the vehicle were not accelerated, the normal time for return would be exceeded. It then becomes the interest of each intervening railway to make up time, to an extent sufficient to extinguish the demurrage already accrued, and no more; and the punctual return of the vehicle is thus secured.

3. You have already pointed out the fundamental error in the present rules, viz., that the free time as now fixed is a maximum, not a fair working average; I would further state that, in my opinion, no free time allowance, however calculated, is fair which does not discriminate between short and long leads, or in some way allows for junctions. I would suggest that the free time be calculated at one hour for every 15 miles for the broad gauge; and one hour for every 10 miles for the metre gauge; and that an allowance of six hours be made for each junction at which a vehicle has to be examined and handed over.

NOTE BY THE TRAFFIC SUPERINTENDENT, OUDH AND ROHILKHAND RAILWAY.

Conference (1888) Rule 17.

Under authority of Railway Conference Secretary's No. 8, dated 5th April 1892, above rule as passed at the Conference has been modified to read as follows:—

"Demurrage shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and, when incurred shall be paid by the line on which it was incurred, to the parent line."

"This regulation applies to all vehicles whether full or empty, and whether the return journey be by the same route as the outward journey or not."

"When, however, a railway has incurred or paid demurrage on a vehicle on its outward journey, such railway shall be entitled to set off against such liability or payment any time it may save in returning such vehicle to the parent line, whether it be returned by the same or a new route."

2. To admit of a parent line ascertaining that all amounts of demurrage earned by any one of its vehicles on each foreign railway over which such vehicle has passed during its absence from parent line has been duly paid to it, it is necessary that the movements of the vehicle over each line, on to which it has passed, be separately accounted for to parent, by its contiguous line.

3. This would, however, entail a deal of clerical labor which, in the majority of cases, would prove unnecessary, since the incurring of demurrage under present free allowance is not very frequent.

4. I would therefore suggest that each railway prepare either monthly, quarterly or half-yearly, a statement for each parent line showing what sums for each of its vehicles it has paid to its neighbouring line for detentions incurred over its own system.

5. The demurrage statements rendered by the parent line's contiguous railway could then be checked from these periodical statements and any amounts not credited claimed from it.

NOTE BY THE AGENT, EAST INDIAN RAILWAY, DATED THE 5TH JULY 1893.

Charge for use of Rolling-stock.

The rules for charge and calculation, as at present prescribed by the Conference Regulations for the use of rolling-stock are most complicated, besides being under three separate heads, viz., mileage, demurrage, and penalty.

2. Proposals have already been made by the General Traffic Manager, Great Indian Peninsula railway, under which there would be one head for mileage and demurrage instead of two.

3. In the attached paper certain proposed rules have been drawn up, which it is thought may be acceptable to railways, as providing a time payment which may be extended also to cover penalty.

4. The rates of charge have been so calculated that the payments in lieu of the mileage and demurrage payments now made will nearly correspond with the charges now leviable. While, if the present penalty charges are abolished, there will still be sufficient deterrent against wilful wrong use of wagons.

5. If the proposals are adopted, the Conference Regulations bearing on this subject will be much simplified, and there will, it is believed, be a large saving in accounts work. The following regulations, and perhaps others which may have been overlooked, will require revision—Nos. 8, 9, 10, 11, 19, 20, 21, 22, 23, 24, 25, 26.

PROPOSALS IN LIEU OF CHAPTER II, SECTIONS II AND III, HEADED MILEAGE AND DEMURRAGE, OF THE CONFERENCE REGULATIONS OF 1888.

SECTION II.—PAYMENT BY OTHER RAILWAYS FOR USE OF ROLLING-STOCK.

Coaching stock.

(a) On coaching vehicles, payment for their use shall be made to the parent line by each line passed over, at the rate of 8 annas per

hour per vehicle, from time of taking over at its junction until time of return at that junction. Fractions of an hour of 30 minutes and over shall be taken as an hour, and fractions less than 30 minutes shall be dropped.

- (b) Half payment shall be made on horse-boxes, carriage trucks, prison and hospital carriages; and on private carriages, troop extra trains, private special trains and special passenger trains put on for fairs, etc.
- (c) One-fourth only of the above charges shall be payable when the distance passed over a railway in one direction is less than 100 miles.

In drawing up these proposed rules for charge on coaching vehicles, the endeavour has been to leave the charges payable and receivable as nearly as possible as they are now. The present rate of demurrage is eight annas per vehicle per hour, and it is proposed that for each hour a passenger vehicle used for ordinary traffic is away in the future from parent line, the payment shall be eight annas also. The payment for detention of coaching vehicles with ordinary traffic will therefore remain unchanged. As regards the payment in lieu of mileage, the present mileage rate is seven pies per vehicle per mile in both directions on ordinary traffic, and on loaded running only (*i.e.*, roughly speaking in one direction only) on special descriptions of traffic. To take the case of a Great Indian Peninsula railway, first class carriage run with ordinary traffic from Jubbulpore to Howrah and back, payment under the present rules is Rs. $\frac{28 \times 2 \times 2}{12 \times 16} =$ Rs. 57-2-8. On a horse-box returned empty, the charge would be Rs. 28-9-4. The time allowance for running the distance, Jubbulpore to Howrah and back, including time at Howrah (24 hours) is 150 hours, and if the whole of this allowance were taken up, the payment under the new rule at eight annas per hour would be Rs. 75. The horse-box payment at half rates would be Rs. 37-8-0. The time allowance would, however, be rarely worked up to, and it is probable that the average time occupied would not exceed 114 hours, the period covered by the present lump-sum payment at the new rates.

In case of detention of coaching vehicles with special descriptions of traffic the rate of payment will be lower than under the present demurrage rules, owing to the provision under proposed rule (b) for half rates only. The charge will, however, be Rs. 6 per day, sufficient to ensure expeditious working.

The provision under head (c) for one-fourth payment only, in the case of short lead traffic, is in order to cover the unavoidable detentions at destination. In the case of a coaching vehicle running 50 miles in one direction and detained at destination before return for 18 hours, the payment would be, allowing three hours running time in each direction, one-fourth of 24 hours at 8 annas per hour or Rs. 3. The mileage payment under present rules would be Rs. 3-10-4.

Goods stock.

- (a) On goods vehicles payment for their use shall be made to the parent line, by each line passed over, at the rate of 16 pies per hour per wagon of carrying capacity not exceeding 12 tons, with one pie additional per ton or part of a ton of carrying capacity in excess of 12 tons. The time on which payment is to be made shall be that occupied in passing over each line, including all halts *en route* and at destination. Fractions of an hour of 30 minutes and over shall be taken as an hour, and fractions less than 30 minutes shall be dropped.

- (b) One-fourth only of the above charges shall be payable when the distance passed over a railway in one direction is less than 75 miles.

In the case of goods vehicles also, the endeavour has been to leave charges as much as possible as they now are, while simplifying the method of the

calculation. Wagons are considered as having somewhat greater loads than the average loads shown in statistics, owing to a great portion of the light loading being in local station to station traffic.

Taking the average load in an Oudh and Rohilkhand railway 10 ton wagon from *via* Mogulserai to Howrah as 8 tons, and assuming that the wagon is returned empty or with a load not paying mileage, the charge under present rules would be Rs. $\frac{1 \times 8 \times 400}{12 \times 16} =$ Rs. 11-11-7. Taking the time in turning round over a total distance of 938 miles at six miles an hour plus 36 hours for unloading at destination, as eight days, the proposed payment will be Rs. 16. As with coaching vehicles, the whole free time is rarely required, and the proposed system is an incentive to work round quickly.

On a Bengal-Nagpur wagon with 14 tons coal, the present mileage payment, Asansol to Howrah, is Rs. 5-12-5. The present free time allowance is 80 hours. The payment under the proposed rules will be Rs. 7-8-0, if the full running time is availed of.

There is the same saving clause in the case of short distance merchandise as with coaching traffic.

In order that the present penal charge as demurrage may remain when wagons are detained, the following clause is proposed:—

- (c) When goods vehicles are absent from the parent line for a longer period than arrived at by allowing one hour for every six miles run, and thirty-six hours for unloading, and twenty-four hours for re-loading at destination; also twelve hours at any intermediate station for each of these operations, and twelve hours each way in the case of a ferry by which goods vehicles are crossed (where the rails are not continuous), a separate demurrage payment shall be made for the excess time occupied over this allowance at the rate of 8 annas per hour per wagon of carrying capacity not exceeding 12 tons, with eight pies additional per ton or part of a ton of carrying capacity in excess of 12 tons. The charge as per clause (a) or (b) will cease when the demurrage charge commences.

N.B.—An alternative to this would be to double, or, if necessary, treble the charge for any time over the proper allowance. This would perhaps be simpler.

- (d) The calculation under the previous clause shall be according to the route followed by a wagon, provided the regulations regarding return of stock are complied with. If these rules are not complied with, the calculation shall be made according to the route which should have been followed.

To take an example of an Oudh and Rohilkhand railway 10-ton wagon, Mogulserai to Howrah, returned empty from Howrah:—

Free time allowance, 193 hours; actual time occupied 210 hours. Charge is for 193 hours at 16 pies per hour, and for 17 hours at 8 annas per hour.

If the wagon is missent on the return journey to Allahabad, and the time in returning thereby increased to 250 hours, the period for the lower charge will remain at 193 hours, and the higher charge will be paid on 57 hours.

Charges under these rules shall be calculated separately on the time occupied in the passage of vehicles over each line in succession, and shall be paid by the line on which incurred to the line to which vehicles are handed over. The charges so received shall be paid over at the next junction to the next line, together with the further charges incurred by the second line, and so on, until ultimately the parent line is paid all charges incurred on the entire journey.

NOTE BY PUNDIT PREM NATH, RAI BAHADUR, EXAMINER OF ACCOUNTS,
 OUDH AND ROHILKHAND RAILWAY.

Interchange of Rolling-stock in through booking.

It would dispense with the necessity for voluminous returns, correspondence, and other records, and considerably simplify the conference regulations, if, in lieu of the present practice of charging for goods vehicles run over foreign lines,—

- (a) $\frac{3}{5}$ pie per ton-mile of load run to destination on outward journey;
- (b) the same rate for vehicles returned loaded short of destination;
- (c) a penalty for misuse of the vehicles;
and
- (d) nothing for empty running,

a uniform rate of three annas per diem per ton of carrying capacity were paid by each line for the use of wagons received from a contiguous line in excess of the wagons handed over to it, the balance being struck daily at each junction station at midnight.

2. This would practically amount to the vehicles being hired by the line paying the tonnage rate, and the line could, therefore, use them as long as, and in any way, it thought fit, provided they were returned to the owning line without damage. To guard, however, against any abnormal use of foreign vehicles during pressure of traffic, by any line, at this comparatively low rate of hire, it might be provided that, in the event of the balance against any line exceeding 210 in number, it would be liable to be called upon to place at the disposal of the line from which the excess number was received empty vehicles of an aggregate carrying capacity equal to that of the number in excess, and failing to meet the demand within the prescribed period, it would be required to pay compensation at the rate of one rupee a ton, for the carrying capacity short supplied.

3. The rate charged at present is $\frac{3}{5}$ pie per mile per ton of actual load. Assuming 9 tons, i.e., $\frac{3}{4}$ of a 12-ton wagon as the average load, and 144 miles (24 hours $\times$ 6 miles) as the distance travelled per diem, the present average rate would appear to be $\frac{3}{5} \times 9 \times 144 = 778$ pies $\frac{778}{12} = 64.83$ pies per ton of carrying capacity per diem, but as this rate is paid only when the vehicle runs under load and time for unloading, reloading or empty running is allowed free, it would appear that the proposed rate of 3 annas or 36 pies per ton of carrying capacity per diem, for both loaded and empty vehicles, would fairly compensate the owning line, and on an average, equal the present rate.

4. Assuming the average cost of a goods vehicle (12 tons) to be Rs. 3,000, its life to be 15 years, the cost of repairs during that period equal to original cost, viz., Rs. 3,000, and that it runs 250 days in a year. The cost per diem of carrying capacity would be—

Original cost	...	...	...	Rs.
Interest @ 4 per cent. for 15 years	...	...	...	3,000
Cost of repairs	...	...	...	1,800
			...	3,000
			Total	7,800

15 years of 250 days each ... = 3,750 days.

$\frac{7,800 \text{ Rs.}}{3,750 \text{ days}} = 2.08 \text{ Rs. per day per 12-ton vehicle.}$

$\frac{2.08 \times 16}{12 \text{ tons}} = 2.77 \text{ annas per ton of carrying capacity per diem.}$

Proposed rate of hire 0-3-0

Profit 23 annas per ton per diem.

APPENDIX A TO QUESTION No. 4-A.

Extract from regulation No. 40 of 1882 as given in the book of Conference regulations published and circulated in 1888.

"40. Whatever amount is paid for mileage, demurrage, or penalty by any railway for the use of vehicles of other railways, shall in all cases belong to, and be paid over to the owning railway."

* * * * *

Notes and correspondence which was received on the subject of Conference regulation No. 40 of 1882, and which was discussed and recorded at the Conference of 1888.

After the Conference had separated, the question arose as to the method under which demurrage should be calculated for credit to the parent railway. Under the rules of 1879, in the case of a wagon belonging to railway X, and passing to destination of the goods it contained over railways A, B, and C, demurrage was paid to X if the total time occupied in proceeding to destination over railways A, B, and C, and returning, was in excess of the total time allowed for the through journey there and back, and free allowance at destination and elsewhere for unloading and reloading. The payment was made by A, which line recovered for any detention on the through distance over B and C, and B recovered for any detention on C. A and B each retained the amount recovered. B recovered for any detention irrespective of the question whether anything was due to A, and A recovered without reference to any dues by A to X.

Thus X the parent line, in the case of a wagon worked expeditiously over A, but detained on B or C, or both, might receive nothing, while A, as a reward for its expedition, and to recompense it for the risk of liability to X, consequent on the detentions on B or C, or both, received credit for the demurrage which had accrued from the time the wagon passed on to B until its return to the junction between B and A.

The rules of 1882, however, provided that all demurrage should be paid to the parent line, and the question arose as to how demurrage should be calculated under the altered arrangement.

In the first instance it was agreed that the calculation should be for each line separately. Thus, in the case of a wagon belonging to X, proceeding to destination over A, B, and C, and working as follows:—

Over A on the two journeys	A large margin within free time,
Over B on the two journeys	24 hours' detention over free time,
Over C on the two journeys	12 hours' detention over free time,

and, in consequence of A's expeditious working handed back to parent line within total free time over all the railways taken together, X would nevertheless receive payment on account of the 36 hours' detention on B and C.

This method of calculation was worked to for some years, but has recently been objected to by one of the railways, parties to the Conference.

It seems desirable that, as under the Conference of 1879, railways working expeditiously should receive the reward instead of the parent line, and it is in accordance with Conference Rule II (c) that demurrage should be paid to A and not to X, the parent line in the case given above.

It is there proposed to return to the working under the Conference rule of 1879 in regard to demurrage on stock interchanged.

Copies of correspondence annexed.

N. ST. L. CARTER,
 Traffic Manager, East Indian railway.

APPENDIX A TO QUESTION NO. 4-A.—*contd.*

No. 15259, dated 28th August 1883.

From—The Acting General Traffic Manager, Great Indian Peninsula railway,
To—The Officiating Traffic Manager, East Indian railway.

A question has arisen as to the method of calculating demurrage, and I am of opinion that, unless demurrage is incurred on the through run of a vehicle, it should not be collected from any of the intermediate railways; notwithstanding demurrage being incurred on those railways; for instance, if a Madras railway vehicle is booked to Lahore and is returned to Raichur within the time allowed in accordance with the Conference rules, no demurrage should be collected from the East Indian, or Sind, Punjab and Delhi railways even if they had kept the wagon, calculating from junction to junction, longer than the Conference rules allow.

Will you please favour me with your opinion on this matter; notwithstanding what is said in rule VII of the Conference, I do not think an owning railway should be paid money, which its vehicle has not earned.

No. 1310, dated 3rd September 1883.

From—The Offg. Traffic Manager, East Indian railway,
To—The Acting General Traffic Manager, Great Indian Peninsula railway.

Calculation of demurrage—Rules VII, XIII and XVIII of the Conference.
Your No. 15259 of 28th ultimo.

The method in force since the 1st January last has been as follows:—

In the case, say, of a Punjab Northern State railway vehicle running through to Madras, the calculation to ascertain the length of time allowed free of demurrage has been made for the Sind, Punjab and Delhi railway, the East Indian railway, the Great Indian Peninsula railway, and the Madras railway, each separately. If the East Indian railway detained a goods wagon of the Punjab Northern State railway more than $\frac{600 \times 2}{24} = 202$ hours, demurrage would be payable to the Punjab Northern State railway; although the wagon was hauled with such expedition over the Great Indian Peninsula railway and Madras railway, that it was returned at Lahore within the number of hours obtained by dividing the total through mileage by six, and adding to the result the allowances for unloading, &c.

The practice followed is in accordance with the principle that the neglect of one railway shall not be covered by the good working of another railway.

I believe your Company is the originator of Rule VII, whilst the views expressed by you are somewhat more in accord with my views.

I hold that if one railway incurs demurrage, that railway should pay; but if the next railway should, by expeditious working, save that demurrage, that next railway has earned the demurrage and should receive it. This was overruled under the leadership of Mr. Conder, and the present rule adopted.—Please see also your Agent's No. 6357 of 24th July 1879 to our Agent.

No. 35—1272, dated 17th September 1883.

From—The Auditor, Great Indian Peninsula railway,
To—The Assistant Auditor, East Indian railway.

Method of calculating demurrage on vehicles interchanged.

With reference to your No. 1083 of the 12th instant, I concur in the views expressed in your No. 864 of the 20th July last, and will continue the practice to calculate demurrage on each line separately, which has been in force since the 1st January 1883.

APPENDIX A TO QUESTION NO. 4-A.—*contd.*

No. 13789, dated 22nd July 1886.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—The Traffic Manager, East Indian railway.

East Indian railway horse-box No. 760 is shown in the mileage and demurrage statements for week ending the 1st May 1886 as having been handed over to us at Jubbulpore at 6 A. M., on the 28th April, booked to Hyderabad, and returned to the junction on the 5th May at 3 P. M.

Under Conference rules, the time allowed for the running of a coaching vehicle from Jubbulpore to Hyderabad and back, including twenty-four hours at destination, is seven days four hours, and the time occupied in this case was only seven days and nine hours.

But I shall be glad if you will please let me know at your early convenience the demurrage claimed on the vehicle in question, and how it is arrived at.

No. 17243, dated 31st August 1886.

From—The General Traffic Manager, Great Indian Peninsula railway,
To—The Traffic Manager, East Indian railway.

With reference to your letter No. G. P. 807 of the 10th instant as to the demurrage upon the East Indian railway horse-box No. 760, I do not concur in the opinion that demurrage should be calculated over each line separately. That has never, so far as I am aware, been the practice in regard to any stock, and is contrary to the Conference rules embodied in the agreement between your railway and this; indeed, so far as your railway is concerned, the horse-box has to be treated as sent on to and returned by the Great Indian Peninsula railway Company only, and you have nothing whatever to do with any other railways.

We can only accept a debit for the five hours' demurrage shown as having been incurred from the time the vehicle left Jubbulpore to the time at which it was returned.

Extracts (Resolutions Nos. 24 and 29) from the Proceedings of Railway Conference of 1888.

Resolution No. 24.

Proposed by Major Boughey, seconded by Mr. Campbell,—

That Regulation 40 be redrafted as follows:—"Whatever amount is paid for mileage and penalty by any railway for the use of vehicles of other railways shall in all cases belong to and be paid over to the parent line; but whatever demurrage is paid by any railway for vehicles of other railways shall belong to and be paid over to the owning railway. The amount of the rebate provided for in Rule 55, and of the extra payment provided for in Rule 56, shall be made to and retained by the railways which respectively form the junction at which the excess which causes those allowances arises, without reference to the railway to which any of the vehicles exchanged may actually belong."

The Committee divided:—

Ayes—51 votes.		Noes—15 votes.	
W. S. Betts (S. I. railway),	4 votes	F. B. Hanna (Madras railway),	4 votes.
W. S. S. Bisset (B., B. & C. I. railway),	7 "	J. Lightfoot (N. W. railway),	7 "
G. F. O. Boughey (Bengal railways),	5 "	W. B. Wright (I. M. railway),	4 "
D. W. Campbell (E. I. railway),	6 "		
H. Conder (G. I. P. railway),	6 "		
W. V. Constable (B. N. railway),	4 "		
L. Conway-Gordon (State railways),	6 "		
J. Craik (S. M. railway),	5 "		
R. Gardiner (B. G. J. P. railway),	3 "		
A. Izat (B. N. W. & R. K. railways),	5 "		

Proposal agreed to.

APPENDIX A TO QUESTION NO. 4-A.—*concl'd.**Resolution No. 29.*

Proposed by Major Gardiner, seconded by Mr. Lightfoot,—

That the words "*but whatever*" in the third line down to the words "*the owning railway*" in the fifth line of regulation 40, as passed by resolution No. 24, be omitted, and the following be substituted as a separate Regulation:—"Demurrage shall be calculated separately on the time occupied in the passage of wagons over each line in succession, and when incurred shall be paid by the line on which it was incurred to the line to which the wagons are handed over; and the demurrage payment so received shall be paid over at the next junction to the next railway, less a rebate of demurrage based on the time saved through expeditious working, or increased by any further additional demurrage incurred through slow working, and so on, in succession at each junction till return to the parent line.

This regulation applies to all wagons, whether full or empty, and whether the return journey be by the same route as the outward journey or not."

Example—

Railway A (parent line) hands a wagon to railway B.

Railway B hands it to railway C, having gained three days, and railway B pays nothing to railway C.

Railway C hands the wagon to railway D, having lost three days, and therefore pays three days' demurrage due to Railway D.

Railway D hands it over to railway E, having gained one day, and pays two days' demurrage on handing it over to railway E.

Railway E hands it over to railway A (parent line), having lost three days, and therefore railway E pays to railway A the demurrage for five days.

The Committee divided:—

Ays—62 votes

W. S. Betts (S. I. railway),	4 votes.
W. S. S. Bisset (B., B. & C. I. railway),	7 "
G. F. O. Boughey (Bengal railways),	5 "
D. W. Campbell (E. I. railway),	6 "
H. Conder (G. I. P. railway),	6 "
L. Conway-Gordon (State railways),	6 "
J. Craik (S. M. railway),	5 "
R. Gardiner (B. G. J. P. railway),	3 "
F. B. Hanna (Madras railway),	4 "
A. Izat (B. N. W. & R. K. railways),	5 "
J. Lightfoot (N. W. railway),	7 "
W. B. Wright (I. M. railway),	4 "

[Captain Constable (B. N. railway) did not vote.]
Proposal *agreed to.*

RAILWAY CONFERENCE, 1893.

A

*Questions to be placed before the Railway Conference of 1893, for
decision.*

No. 2.

REVISION, IF NECESSARY, OF THE GENERAL RULES FOR
WORKING RAILWAYS UNDER CONSTRUCTION.

8.3
NW 7410/53

REVISION, IF NECESSARY, OF THE GENERAL RULES FOR
WORKING RAILWAYS UNDER CONSTRUCTION.

ISSUE.

Whether, having regard to the decision arrived at on question No. 1-A., any alteration or modification is required in any of the general rules for lines under construction.

RAILWAY CONFERENCE, 1893.

A

*Questions to be placed before the Railway Conference of 1893,
for decision.*

No. 1.

CONSIDERATION OF THE GENERAL RULES FOR WORKING
OPEN LINES OF RAILWAY IN BRITISH INDIA.

Ms ^{8.2}
7410/93

CONSIDERATION OF THE GENERAL RULES FOR WORKING
OPEN LINES OF RAILWAY IN BRITISH INDIA.

ISSUE.

To consider the revised general rules of 1892 for state railways administered by Government with the view of suggesting such modifications as will render them suitable for adoption on all open lines of railway in India.

I.—CORRESPONDENCE RELATING TO RULE 26, CHAPTER II, SECTION II,
OF THE REVISED RULES REGARDING "STARTING TRAIN IN OPPOSITE
DIRECTION ON SINGLE LINE ON CANCELLATION OF LINE CLEAR."

No. 141 T., dated the 19th April 1893.

From—The Director-General of Railways,

To—The Secretary, Railway Conference.

The undermentioned paper is forwarded to the Secretary to the Railway Conference for discussion at the Conference :—

Copy of letter No. 343 D. G. of Rys., dated 5th April 1893, from the Manager, North Western railway, suggesting alteration in the wording of rule 26 of the general rules for working open lines of railway.

No. 343 D. G. of Rys., dated 5th April 1893.

From—The Manager, North Western railway,

To—The Director General of Railways.

I have the honour to draw your attention to the wording of rule 26 of the new rules for working open lines of railway and to suggest that the words "*is and will be detained*" might be altered to "*is or will be detained as the case may be.*"

2. It is clear that as the rule now stands a train cannot be started until the train whose line clear has been cancelled has arrived and been stopped, and this would frequently cause unnecessary delay.

3. The question might be discussed at the Conference, at which it is understood the new rules will be considered with a view to their general adoption.

2

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN
IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING
"SIGNALS AND USE OF SIGNALS."

Note by the Agent, East Indian railway, dated the 8th August 1893.

Hand signals in shunting operations.

The orders at present in force on the East Indian railway in regard to hand signals in shunting operations are as follows:—

1. A white flag or light is never to be used as a hand signal in shunting. The white glass in hand lamps is meant only for use in inspecting points, examining wagons, and such work, and not in giving shunting signals.

2. A red flag or light is a signal to come to a stand in whichever direction a driver may be going.

3. A green flag or light held in a fixed position is a signal to a driver to proceed cautiously on the direction he is going in; if waved forward, it is a signal to move forward; if backward to move backward; but always with caution.

It is believed that similar orders are in force on most railways in India.

The East Indian railway's experience is that imperfect or misappropriated signals in connection with the practice of waving forward or waving backward are the chief causes of accidents in shunting.

It is very easy to give these signals in a slovenly way; so that it is at times difficult to know whether forward or backward is meant, and the light flashing behind as well as in front of the signalman, drivers of engines coming in opposite directions have each appropriated the signal meant for one only.

It is suggested that the following method of hand signalling, which obtains in England, should be adopted on Indian railways.

1. A green flag or light moved slowly up and down, means "move forward." A green flag or light waved slowly from side to side across the body (horizontally) means "move back."

To "slow down" these signals are to be displayed slower and slower until "stop" is shown.

2. A red flag or light in all cases, or any other light waved violently, means "stop."

3. Hand flags and hand lamps when used as signals, except where they are employed for the purpose of making the actual point of obstruction, must always be held in the hand and not stuck in or placed upon the ground.

4. When two engines or vehicles are approaching the same pair of points from two different lines, or when there is a likelihood of this occurring, both should be brought to a stand by danger signals and when this has been done, and not before, the person in charge of the engine or vehicle which it is intended to allow over the points first must be told verbally, as well as signalled to move forward, while a danger signal and verbal order to stop must be given to the other.

Notwithstanding repeated orders to the contrary white lights are by preference used by gunners when directing night shunting. They are encouraged to do this by the drivers who find the white lights more brilliant and more readily observed than the green, and less likely to be confused with pointsmen's lights. It is therefore worth consideration whether their employment should not be sanctioned. If the English system of signalling be adopted, there would apparently be little reason to fear the likelihood of other lights being confused with it.

3

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN
IN CHAPTER II, SECTION VIII, OF THE REVISED RULES REGARDING
"SIGNALS AND USE OF SIGNALS"—*contd.*

No. 878 D. G. R., dated the 10th August 1892.

From—The Manager, North Western railway,

To—The Director General of Railways.

I have the honour to enquire if the regulations regarding the use of station and distant signals, which are found in No. 87 of the new general rules for Indian state railways, are intended to be applied in their entirety, or if a railway administration is free to make subsidiary rules modifying the details.

2 The majority of our home signals cannot shew the "all right" signal at all. By day they shew danger and caution; by night a red and a green light. The arm cannot fall flat alongside the post by day, nor can a white light be exhibited at night.

Similarly, the majority of our distant signals only shew danger and caution by day, and by night a red light and a white light. At night they cannot shew a green light for caution, and would thus contravene rule 77 if rigidly enforced.

3. This technical difficulty can no doubt be got over although the time during which the signals will have to be in a state of transition may be attended with danger.

I beg to point out, however, that the system of signalling, laid down in 87 (b) and 87 (d) of the general rules, differs in principle from that adopted on this railway, under which it is the practice that the home signal governs the distant signal, which is to the driver not so much a signal in itself separately, but rather an indicator of what he will find repeated by the home signal. The only exception to this practice is at night when, to exhibit a caution signal, the distant signal shews a white light and the home signal a green light. I understand that this has been adopted in order to give a driver the greatest possible chance of catching the signal at the greatest distance, because the white light travels so much further than a coloured light.

4. Under our present system the home signal is lowered first, and the distant signal repeats the home signal, and thus indicates to a driver what the home signal is.

It appears doubtful if it is worth while contravening this principle in order to adopt the refinement contained in rule 87 (b), the more especially because in some cases the driver cannot see both home and distant signals simultaneously, and would not gain much by drawing up inside the distant signal, whilst there would be a chance (seeing the distant signal at caution and expecting to find the home signal exhibiting a similar signal) of his running into the yard at too high a speed and thus rendering an accident possible.

5. The same objection would apply to rule 87 (c). There is, however, a more serious objection to the home signal shewing an "all right" signal. An "all right" signal may be considered to be an incomplete signal. That is to say one of the arms of the semaphore might have been blown away by a high wind, or the glass of the spectacles might have been broken by a hail storm. The driver unaccustomed to an "all right" signal would know at once that something was wrong and would pull up for instructions, otherwise if on the look out for an "all right" signal, he would go on, and this might lead to danger in cases of accident to the signal itself, such as above described. It is true that this objection might be equally applied to our existing distant signal shewing a white light, but against this it may be said that this is the lesser of two evils.

6. I venture to hope therefore that our system of signalling may not be considered as contravening the spirit of the general rules, and that it may be allowed to continue. I understand that the system of signalling on the East Indian railway and on the Rajputana-Malwa railway is the same as that on the North Western railway, and as this is the result of years of practical experience, it does not seem worth while to disturb it.

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING "SIGNALS AND USE OF SIGNALS"—*contd.*

No. 1223 D. G. R., dated 17th November 1892.

From—The Manager, North Western railway,
To—The Director General of Railways.

In continuation of this office letter No. 878 D. G. R., dated 10th August 1892, representing certain difficulties experienced on the North Western railway in complying with the requirements of rule 87 of the new general rules and regulations for open lines of railways as regards the working of station and distant signals, I have the honour to state that the distant signals on this line are fitted with white spectacles, to replace which by green ones would entail considerable expense. Similarly, the main signals are provided with green spectacles but not with white ones. I would therefore suggest the following amendment to rules 84 and 87 so as to enable the present system of working signals on the North Western railway to be continued without contravening the general rules—

Rule 84.—Add at the end of paragraph 'white lights may be exhibited at night for "caution" instead of green.'

Rule 87.—Add the following as clause (e):—'Where the station signal is not constructed to shew the "all right" signal, the signals prescribed in clause (c) may be shewn to trains which are booked to run through the station without stopping and which it is intended should run through without stopping.'

No. 01 T., dated 30th November 1892.

Telegram from—The Director General of Railways,
To—The Manager, North Western railway.

Your letter numbered and dated as follows: 1223 D. G. R., 17th instant. Would it suit if the words "white or" were added before the word "green" in rule 77, and if rule 87 were altered as suggested by you. If so, would it then be necessary to alter rule 84?

No. 1274 D. G. R., dated 1st December 1892.

Telegram from—The Manager, North Western railway,
To—The Director General of Railways.

Your wire 01 T. Modification of rules 77 and 87 proposed will suffice. Not necessary then to alter rule 84.

No. 0043 R. T., dated the 14th January 1893.

RESOLUTION—By the Government of India, Public Works Department.

General rules for working open lines of railway in British India administered by the Government.
Addition to rules 77 and 87.

Read—

Section 47 (4) of the Indian Railways Act (IX) of 1890.

Government of India circular No. 3 Railway, dated the 19th April 1892, promulgating general rules for working open lines of railway in British India administered by the Government.

Public Works Department notification No. 174, dated the 7th May 1892, publishing in the *Gazette of India* of the 14th May 1892 the circular and the general rules read above.

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING "SIGNALS AND USE OF SIGNALS"—*contd.*

Read also—

Letter No. 457 T., dated the 8th December 1892, from the Director General of Railways, proposing certain additions to those rules in regard to the working of station and distant signals on the North Western railway.

OBSERVATIONS.—It has been represented that, owing to the manner in which station and distant signals are constructed on the North Western railway, the system of signalling in force on that line differs from that laid down in rule 87 of the general rules referred to above, and that to admit of the present system being continued without contravening the orders on the subject an amendment of rules 77 and 87 is necessary.

RESOLUTION.—The Governor General in Council is therefore pleased, under section 47 (4) of the Indian Railways Act, IX of 1890, to sanction the following additions to rules 77 and 87 of the general rules of 1892 referred to above being applied to the open lines of the North Western railway:—

Rule 77.—At end of this rule before the word "green" add the words "white or."

Rule 87.—Add the following as clause (e):—

"Where the station signal is not constructed to show the 'all right' signal, the signals prescribed in clause (c) may be shown to trains which are booked to run through the station without stopping, and which it is intended should run through without stopping."

ORDER.—Ordered, that the general rules, which have already been published in the *Gazette of India*, dated the 14th May 1892, be further notified to the railway servants and to the public, by a copy thereof, as herein modified, being kept open to inspection, free of any charge, in the office of the station master of every station on the North Western railway.

Ordered also, that this resolution be communicated to the Director General of Railways for information and guidance, and that it be published under a notification in Part I of the *Gazette of India*.

Office note, dated the 24th January 1893, by MR. HORACE BELL, Consulting Engineer to the Government of India for state railways, on correspondence printed on pages 3 to 5, ante.

I think we should reconsider and revise rules 77, 78, 84 and 87. The common practice, certainly in India, and I think generally in Europe, or at least in the United Kingdom, is to have white and red lights on distance signals (I see "distant" used in the rules). I cannot agree that there is the same objection to a white light in the distance signal as in station signals, which, I quite agree, should show only red and green. The Manager has put the case clearly, and in my opinion soundly. The draft resolution* (which has, I believe, been since issued) contains a serious mistake.

* No. 0043 R. T., dated the 14th January 1893, printed on page 4 ante.

Rule 77 applies to *all* signals. We only wish to deal with the distance signal lights, and we do *not* want a white light on the main signal. Rule 87 (d) as it stands is dangerously wrong. A distance signal is an indicator only and of the position of the main signal. With interlocking, as now practised, the rule could not be carried out. It is doubtful whether we need the 'all right' signal at all on our signal arm. It is I think generally out of use.

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN
IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING
“SIGNALS AND USE OF SIGNALS”—*contd.*

No. 37 T., dated 1st February 1893.

From—The Offg. Director General of Railways,

To—The Manager, North Western railway.

In continuation of my endorsement No. 30 T., dated the 27th January 1893, forwarding Government of India resolution No. 0043 R T., dated the 14th January 1893, which sanctioned the application to the North Western railway of certain additions to rules 77 and 87 of the general rules for working open lines of railway in British India administered by the Government, I have the honour, with reference to the addition made to rule 77, to inform you that a white light should never be used as a “caution” signal except in the case of distant signals.

No. 228 T., dated the 22nd June 1893.

From—The Director General of Railways,

To—The Secretary, Railway Conference.

The undermentioned paper is forwarded to the Secretary to the Railway Conference, for favour of necessary action:—

Copy of a letter No. 282 D G., dated the 12th June 1893, from the Manager, Oudh and Rohilkhand railway, to the Director General of Railways.

No. 282 D.G., dated the 12th June 1893.

From—The Manager, Oudh and Rohilkhand railway,

To—The Director General of Railways.

Not printed. In reply to your letter No. 312 T., dated 23rd August 1892, enquiring about the working of No. 87 of the general rules of 1892, for open state railways, I have the honour to report that the rule in question was adopted on this railway in August 1892, and that it has worked without any accident, and without complaints from either the running or station staff ever since.

2. Personally I consider 87(b) to be an unnecessary refinement, 87(a) being sufficient to meet requirements, and 87(d) appears to be dangerous, first, because the home signal is, in this case, a negative signal, which, in my opinion, is always objectionable, and also because, in this case, as in 87(b), the distant signal fails to repeat the home signal, and thus breaks, what I consider, a cardinal principle.

The Traffic Department of this railway, however, holds a different opinion, and as the case will perhaps be discussed at the ensuing Railway Conference, I have decided to take no action pending a further discussion of the matter.

Office note, dated the 7th July 1893, by Mr. F. L. O'Callaghan, Secretary to the Government of India, Public Works Department.

I do not think that semaphore signal posts should be slotted to allow the arm to disappear as shown in rule 78. An arm may be blown off and a driver may thus be misled. I think that the English practice should be followed.

Office note, dated the 10th July 1893, by Mr. Horace Bell, Consulting Engineer to the Government of India for state railways.

I quite agree with above note by the Secretary. We should in future adopt Board of Trade recommendation of 1892, viz.:—

Green for all right,
Red for danger,

and back lights showing white, and only visible when signals are at danger. The position of the arm at ‘all right’ should be as shown in our rules for “caution”

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN
IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING
“SIGNALS AND USE OF SIGNALS”—*contd.*

and the rule 78 in the rules should be expunged. Rule 87 (b) and (d) are opposed to all practice. The distant signal *should* simply indicate position of main. Such rules could not be worked with interlocking as now arranged. Their complication and divergence from generally recognised practice would be certain to lead drivers into mistakes. A signal to a driver should indicate either all right or all wrong.

Note, dated the 2nd December 1892, by Mr. F. E. ROBERTSON, Chief Engineer, East Indian railway, on railway signalling.

The rules that were circulated with Public Works Department circular No. 3 of 19th April 1892, require revision in the following points:—

Rules 77 and 78.—The idea of three positions of a semaphore is quite obsolete, and it is surprising to find it retained in a publication dated 1892.

There is only the “caution” position for a signal when taken off and the light should be green, as a white light might proceed from a broken red-glass.

Rule 86.—For “distant” read “all” and note that the counterweight *should* be on the arm and not on the rod at foot of post as is the Indian practice.

Note also that all distant signals should have a fish-tailed arm, a distinction generally omitted in India, but a very important one.

Rule 87 (b)—This rule is absolutely inadmissible and in defiance of the elementary principles of signalling. The distant signal is primarily intended to inform the driver in what state he may expect to find the home signal so as to have his train under control, and is not in itself an absolute signal.

With interlocking the distant signal is locked by, and backlocks the home signal, so that with proper arrangements you cannot effect the manœuvre here described.

Rule 87 (d)—Should be expunged. To make a distinction in the position of a signal arm, whether a train is to stop at or run through a station, is most objectionable, and again *cannot* be done with proper interlocking.

It is no part of the function of signalling to tell a driver if he is to stop at a station (except so far as a clear road is concerned). The time-table does this. But if for any reason it is considered necessary, it must be done by a separate arm and not by gradations in position of one arm. There might be two arms to the home signal, one off to enter, and both off to run through; but to be of any practical use, there would also have to be two arms to distant signal—altogether a clumsy attempt to make the signals do what is not their duty.

Rule 88—Had better be worded thus—

“Semaphores only apply to running trains but discs to all vehicles whether part of a train or not.” This is a distinction not clearly understood by the Traffic Department on some Indian roads, but it is most important to understand that a red disc bars the way to *any vehicle whatever*.

2. In close connection with these rules, has to be considered the best arrangement for passing roadside stations on single track at speed—a demand which is daily increasing on Indian lines with the number of these stations and the speed of our trains. It is, at least on the East Indian railway, quite a serious question.

I am very decidedly of opinion that no form of indicator or ground signal is any good, and that the only security is to be found in a proper interlocking of the entrance points with the semaphores.

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN
IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING
"SIGNALS AND USE OF SIGNALS"—*contd.*

Just what form this should take is an open question. Of all devices put forward in England, I consider the "Simplex" the best. This is a selector and there are only three levers, one for points, one for main and one for distant signal. The points lever works the selector and the proper signals must follow without any further interlocking. The three levers can be put at the points if desired and can be worked by an ordinary pointsman and require no cabin. Appendix A* is the description.

* Not received.

3. Ordinary interlocking cannot be worked in our Indian stations from a central cabin, as the distances are too great and the double cabin is expensive.

To meet this want I have designed a hydraulic interlocking which can be made by any railway for itself, and will cost less than the ordinary system. †Particulars of this will follow. The advantage of this system is that the levers can be put in the station master's office, and distance has no effect on it.

† Not received.

4. The arrangement of signals is a matter worthy of discussion.

Fig. I.

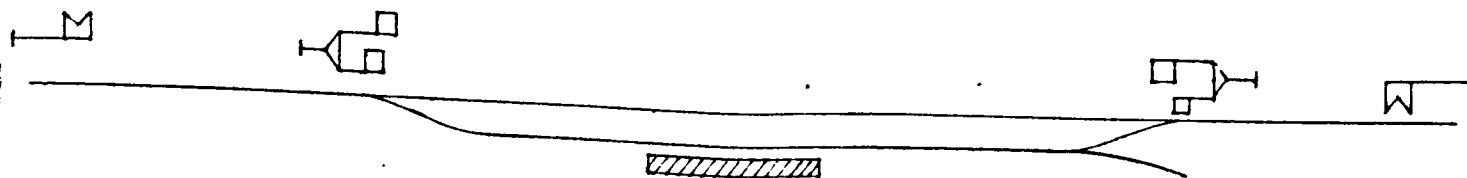
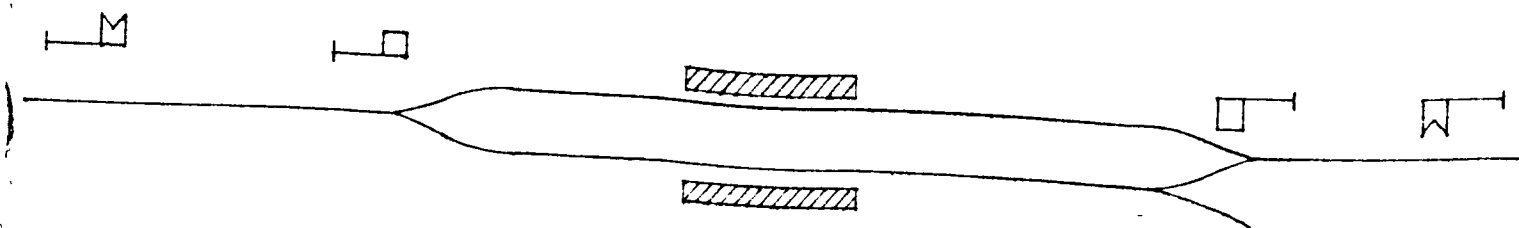


Fig. II.



II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN
IN CHAPTER II, SECTION VIII, OF THE REVISED RULES, REGARDING
"SIGNALS AND USE OF SIGNALS"—*contd.*

There is on most single lines only one platform at different sides at different stations, and there is properly speaking no up or down side, and it is uncertain to the driver which road it is intended to receive him on.

With such an arrangement the signalling of Fig. I is suitable; the relative position of the big and little signal shews the driver at a glance whether he is destined for the straight road or siding and also which side his road is.

But for lines like the East Indian railway, where the up and down sides are always observed and where there are two platforms even on single track, I should prefer to split the curve and put in a very easy crossing, so that trains could run through at speed on either line, and the up and down sides be always adhered to, thus requiring only one signal as in Fig. II.

Extract from report on railway working by Mr. W. H. Cole, Executive Engineer.

In future, *i. e.*, on all new lines in England, the lights will be red when the signal is "on," and green when the signal is "off," the back light being screened in the latter case and white in the former, so that white is actually a danger light. This refers to fixed signals.

If the arm is slung in a slot in the signal post, it should be prevented by a stop from dropping when "off" right into the slot and being entirely hidden. It is still better not to slot the post.* The arm should invariably be balanced to fly to "danger" on breakage of the rods.

* NOTE.—This is necessary as otherwise a driver might mistake a signal having its arm broken off for an "all right" signal.

When more than one arm has to be placed on the same post, it is better to bracket them than to arrange them one above the other.

It would be as well to cut a fish-tail notch in the end of the arm of a distant signal, to distinguish it from a stop signal.

The new standing order regarding signal sights reads: "In future the fixed signal lights will show a red light to drivers, when at danger, the back light being white, and a green light to drivers when off, the back light being obscured."

It should be noted that there are only two positions, and the back light being obscured "whether the lamp be out or not" indicates that the danger signal is not exhibited to the driver.

The end of the arms of all distant or repeater signals are cut fish-tailed, but apparently no satisfactory way of distinguishing them at night is in general use.

Every signal is required to be so weighted as to fly to danger if any of the connections break, and this is conveniently done by swinging the arm on a centre beyond the post by means of a bracket, and fixing the spectacle frame on the back end of the arm, as a counter-weight.

Note, dated the 12th July 1893, by the Deputy Consulting Engineer to the Government of India for state railways.

The function of signals on English railways and Indian single lines differs so much, that it seems advisable to clearly explain this difference.

2. In England, when the home or stop signal at cabin 1 is "off" the train may proceed *up to* the home or stop signal of cabin 2. The distant signal of cabin 2 is used solely to warn the driver of the position of the stop signal. At all cabins except those which are only block stations, that is at all stations and sidings, there is a third signal, called the starting or advance signal.

II.—CORRESPONDENCE AND NOTES RELATING TO THE RULES LAID DOWN IN CHAPTER II, SECTION VIII, OF THE REVISED RULES REGARDING "SIGNALS AND USE OF SIGNALS"—*concl'd.*

Suppose cabin 2 to have such a signal, he can, if the section from 2 to 3 is not clear, after stopping the train at his stop signal, admit it under the protection of the signal into the length between the stop and starting signals. If now cabin 1 wishes to send on another train from 1 to 2, although the train standing at cabin 2 is protected by the home signal *and the distant signal*, the other train *must be stopped* at cabin 1, and the driver given a caution message before he is sent on to 2.

3. Compare this with the practice on single lines in India. The driver of a train starting from 1 gets a line clear, which means that he can proceed to some indefinite point near 2. He knows nothing whatever of the condition of the line at 2, whether it is or will be blocked. The home signal at 2 is made to convey to him that he must stop at a distance from it, which on a dark rainy night is very difficult to judge; in addition to this the *distant* signal (alone and without any previous notice) may be used to order him to *stop outside it*. If he makes any error or overruns the signal he may collide with a shunting train; if the signal lamp happens to have gone out, or worse still if the red glass is broken by hail (which cannot be seen from the station), he goes on, and may meet another train.

On a rainy night it is often difficult or impossible to see the main signal till after the distant signal is passed even where the line is straight.

4. Now in English practice, when the train at 2 is protected both by a *home and distant* signal, no train must leave 1 for 2 without a special caution.

5. In India not only is there no special caution but the train at 2 is protected *only* by a distant signal, which has only a *red* spectacle, the white light meaning "signal off" so that a glass broken by hail would show "signal off." Even when a train at station 2 is standing in its normal position, it is generally considerably in *front* of the home or stop signal on the platform. A signal to protect a train efficiently should be *between* it and any other train, and English practice requires in addition that when there is or may be only a home *and* a distant signal without any additional space, between one train and another, there shall also be a special caution message.

On single lines, when one train *passes* another, the first train must be shunted clear of the line on which the second is to be received before the second train is allowed to start from the station in rear.

When one train *crosses* another, the up train is invariably received on a line on which no down train is even allowed, except for shunting, protected *both by the signals, and by block* to the next station.

The points and signals are in addition so interlocked that a train cannot come on to the wrong line unless a driver disregards the signals. Under the most favourable circumstances reliance cannot be placed on the working of a distant signal, and if it is to be used as a stop signal, it should at least have a green glass for "signal off" so that a driver would know that a white light meant something wrong with the signal.

III.—CORRESPONDENCE RELATING TO RULE 185, CHAPTER II, SECTION XII OF THE REVISED RULES, REGARDING "SCREW COUPLINGS."

No. 482 T., dated 31st December 1892.

From—The Director General of Railways,

To—The Secretary to the Government of India, Public Works Department.

As very few of the goods vehicles attached to passenger or mixed trains on the metre and 2' 6" gauge of the Eastern Bengal state railway system are provided with screw couplings, it is considered desirable that rule 185* of the general rules for open lines of railway promulgated with Government of India circular No. 3 Railway, dated the 19th April 1892, should, in the case of the railway above mentioned, be modified in order to avoid light running.

2. I have therefore the honour to recommend that the words "except those with central buffers" may be interpolated between the words "vehicles" and "attached" in rule 185.*

No. 0047 R. T., dated the 19th January 1893.

RESOLUTION—By the Government of India, Public Works Department.

General rules for working open lines of railway in British India administered by the Government.

*Modification of rule 185.**

Read—

Section 47 (4) of the Indian Railways Act (IX) of 1890.
Government of India circular No. 3 Railway, dated the 19th April 1892, promulgating general rules for working open lines of railway in British India administered by the Government.

Public Works Department notification No. 174, dated the 7th May 1892, publishing, in the *Gazette of India* of the 14th May 1892, the circular and the general rules read above.

Read also—

Letter No. 482 T., dated the 31st December 1892, from the Director General of Railways, recommending that rule 185 of the general rules referred to, which relates to the provision of screw couplings to goods vehicles attached to passenger or mixed trains, may be modified so as to suit the circumstances of the Eastern Bengal state railway.

OBSERVATIONS.—It has been represented that very few of the goods vehicles on the metre and 2' 6" gauge sections of the Eastern Bengal state railway are provided with screw couplings, and that it is therefore desirable to modify rule 185 of the general rules referred to above in order to avoid light running.

RESOLUTION.—The Governor General in Council is pleased, under section 47 (4) of the Indian Railways Act (IX) of 1890, to sanction the following modification of rule 185 of the general rules of 1892 referred to above being applied to the open lines of the Eastern Bengal state railway system.

RULE 185.—Between the words "vehicles" and "attached" interpolate the words "except those with central buffers."

ORDER.—Ordered that the general rules, which have already been published in the *Gazette of India*, dated the 14th May 1892 be further notified to the railway servants and to the public by a copy thereof as herein modified being kept open to inspection, free of any charge, in the office of the station master of every station on the Eastern Bengal state railway.

Ordered also that this resolution be communicated to the Director General of Railways, for information and guidance, and that it be published under a notification in Part I of the *Gazette of India*.

* See also pages 18, 19, 22 and 23, *infra*, for further communications relating to this rule.

IV.—CORRESPONDENCE RELATING TO RULE 279, CHAPTER IV, OF THE REVISED RULES, REGARDING "DANGEROUS GOODS."

No. 18 T., dated 18th January 1893.

From—The Director General of Railways,

To—The Secretary to the Government of India, Public Works Department.

I have the honour to forward, in original, letter No. 560 D. G. R., dated 15th December 1892, with its enclosures, received from the Manager, Eastern Bengal state railway, suggesting that liquid carbonic acid gas in cylinders may be removed from the list of dangerous goods given in rule 279 of the general rules for open state railways.

2. Under the circumstances explained by the Manager, I have the honour to recommend that the words "other than liquid carbonic acid gas secured in wrought-iron cylinders certified by competent authority to withstand a pressure of 250 atmospheres" may be added against the entry "Gas, compressed" in rule 279 referred to above, and that this modification in the general rules may be made applicable to all state railways administered by Government.

No. 560 D.G.R., dated 15th December 1892.

From—The Manager, Eastern Bengal state railway,

To—The Director General of Railways.

I have the honour to enclose copies of the marginally-noted correspondence, and, with reference thereto, I beg to draw attention to the opinions expressed both by the German Government Inspector and by the Chemical Examiner to the Government of India, as to the absence of danger in carrying liquid carbonic acid gas in cylinders such as Messrs. Andrew Yule & Co. propose.

2. As it seems to me probable that a profitable traffic may spring up in this commodity if some inducement be given in the rates of freight, it being used for the manufacture of soda-water, I propose while classing it in the 5th class to charge the rate of $\frac{1}{3}$ rd of a pie per maund per mile.

3. Compressed gas, however, is classed as dangerous goods, *vide* chapter IV of the general rules for Indian railways, paragraph 279, and if the rules laid down for the packing and despatch of such be not relaxed in this instance, it is probable that any traffic in liquid gas will be very small, but on the opinions of experts above quoted, I venture to suggest that the article in question may be removed from the list of dangerous goods when packed in cylinders tested and certified to a pressure of 3,750lbs. to the square inch, and that my proposals as to rate may be approved.

Dated 7th November 1892.

Demi-official from—Messrs. ANDREW, YULE & Co., Managing Agents, Indian Aërating Gas Factories, Limited, 7, Clive Row, Calcutta,

To—The Manager, Eastern Bengal state railway.

We beg to bring to your notice that we have erected a factory here for the manufacture of liquid carbonic acid gas.

2. The wrought-iron tubes which contain the gas are thoroughly tight and are tested to stand a pressure of 3,750 lbs. to the square inch by the German Government; the efficiency of each cylinder being attested by certificates, one of which we beg to enclose.

3. The liquid gas is harmless to life and property, is non-inflammable and non-explosive. It is indeed an extinguisher of fire, being used for this purpose in hand grenades and other recently patented fire extincteurs.

4. The weight of each cylinder full is about 112lbs. and when empty 90lbs. The quantity of liquid gas is therefore not more than $\frac{1}{5}$ th of the total weight of the package.

IV.—CORRESPONDENCE RELATING TO RULE 279, CHAPTER IV, OF THE REVISED RULES, REGARDING "DANGEROUS GOODS"—*contd.*

5. This being so, and considering the perfectly harmless nature of the contents, we venture to request that the rate of freight to be charged on the cylinders for conveyance by your railway, be the same as for iron pipes or as near thereto as you may be pleased to fix.

6. Our factory being the first of its kind in India, we ask your special consideration for this untried industry, as its success depends mainly on the article being introduced to the public at a low price.

Certificate of Pressure-test.

I tested to-day in the "Sürther Maschinenfabrik, formerly H. Hammer-schmidt in Surth near Cologne," a cylinder, made of wrought-iron, which has to contain liquid carbonic acid with the impression—

"Indian Aërating Gas Factories, Ltd."

No. 552

by desire of the said Manufactory and according to regulation XXXVIII (a) of rules for the railways in Germany and established the following:—

(a) The cylinder withstood a pressure of 250 atmospheres (3,750lbs.) without showing to change form or untightness.

(b) The weight of the empty cylinder, including valve and protecting cap, is 88lbs. engl.

(c) The maximum allowable quantity of liquid to be filled, according to the proportion of 1lb. liquid to 0,609 liter contents, is $22\frac{5}{8}$ lbs. = $13\frac{7}{8}$ liter.

As a proof of the test made, there is impressed at the top of the cylinder the foregoing marked weights* and the seal.*

* Not printed.

The foregoing certificate is hereby issued according to law.

COLOGNE;

The 22nd Yulé 1892.

BRETTINEY,

The Royal Inspector.

No. $\frac{A}{1130}$, dated 1st December 1892.

From—The Chemical Examiner to Government,

To—The Manager, Eastern Bengal state railway.

In reply to your No. 2625M., dated Sealdah, the 14th November 1892, I have the honour to state that in my opinion there is no danger in the carriage of the goods in question. The breaking test of the cylinders is so far in excess of any pressure to which they are likely to be subjected that with ordinary care in transport there should be absolutely no fear of breakage.

The certificate of pressure-test is herewith returned.

IV.—CORRESPONDENCE RELATING TO RULE 279, CHAPTER IV, OF THE REVISED RULES, REGARDING "DANGEROUS GOODS"—*contd.*

No. 0058 R.T., dated the 28th February 1893.

RESOLUTION—By the Government of India, Public Works Department.

General rules of 1892 for working open lines of railway in British India administered by the Government.

Addition to rule 279.

Read—

Section 47 (4) of the Indian Railways Act (IX) of 1890.

Government of India circular No. 3 Railway, dated the 19th April 1892, promulgating general rules for working open lines of railway in British India administered by the Government.

Public Works Department notification No. 174, dated the 7th May 1892, publishing in the *Gazette of India* of the 14th May 1892, the circular and the general rules read above.

Read also—

Letter No. 18 T., dated the 18th January 1893, from the Director General of Railways.

OBSERVATIONS.—It has been represented that there is no danger in carrying by railway liquid carbonic acid gas if secured in wrought-iron cylinders tested and certified to a pressure of 3,750lbs., and that a profitable traffic may be expected if this commodity, which is used for the manufacture of soda-water, be, when so secured, excluded from the list of dangerous goods prescribed in rule 279 of the general rules referred to above.

RESOLUTION.—The Governor General in Council is pleased, under section 47(4) of the Indian Railways Act (IX) of 1890, to sanction the following addition to rule 279 of the general rules of 1892 referred to above being applied to the open lines of all state railways directly administered by Government:—

Rule 279.—After the entry "Gas, compressed" add the words "other than liquid carbonic acid gas secured in wrought-iron cylinders certified by competent authority to withstand a pressure of 250 atmospheres (3,750lbs.)."

ORDER.—Ordered, that the general rules, which have already been published in the *Gazette of India*, dated the 14th May 1892, be further notified to the railway servants, and to the public, by a copy thereof, as herein modified, being kept open to inspection, free of any charge in the office of the station master of every station on the railways concerned.

Ordered also, that this resolution be communicated to the Chief Commissioners of Burma and Assam, the Director General of Railways, and the Consulting Engineer for Railways, Calcutta, for information and guidance, and that it be published under a notification in Part I of the *Gazette of India*.

No. 370 R.T., dated the 27th June 1893.

From—The Secretary to the Government of India, Public Works Department,
To—The Secretary, Railway Conference.

The undermentioned papers are forwarded to the Secretary to the Railway Conference, for necessary action:—

(1) Copy of letter No. 135 D.G.R., dated the 10th February 1893, from the Manager, North Western railway, to the Director General of Railways, and of its enclosure.

(2) Copy of letter No. $\frac{A}{435}$, dated the 26th April 1893, from the Chemical Examiner to Government, to the address of the Director General of Railways.

IV.—CORRESPONDENCE RELATING TO RULE 279, CHAPTER IV, OF THE REVISED RULES, REGARDING "DANGEROUS GOODS"—*contd.*

(3) Government of India Resolution No. 321 R.T., dated the 7th June 1893.

No. 135 D.G.R., dated 10th February 1893.

From—The Manager, North Western railway,

To—The Director General of Railways.

With reference to rule 279 of general rules for Indian railways declaring certain articles to be dangerous goods for the purpose of the Indian Railways Act (IX) of 1890, I have the honour to forward herewith, for your information, copy of paragraph 2 of letter No. 3444, dated 17th December 1892, from the Inspector General of Civil Hospitals, Punjab, and to enquire if, for the reasons given by Doctor Cleghorn, "chloroform" may not be removed from the list of dangerous goods. I also beg to note that small quantities of it are commonly despatched with other drugs, and it may, therefore, apparently be classed with drugs imported instead of dangerous goods.

Copy of paragraph 2 of letter No. 3444, dated 17th December 1892, from the Inspector General of Civil Hospitals, Punjab, Lahore, to the Manager, North Western railway.

I would point out that chloroform, as a freight, is not dangerous, as it is neither corrosive, explosive, nor inflammable. It should be classed with ordinary drugs under which it is usually carried, as it is seldom shipped for hospital use in a separate case, and I would solicit the favour of your referring the matter to the Government of India, Public Works Department, for re-classification of chloroform, and for a refund of the excess paid by the Principal of the Medical College.

No. $\frac{A}{435}$, dated 26th April 1893.

From—The Chemical Examiner to Government,

To—The Director General of Railways.

With reference to your letter No. 98 of the 22nd March last, I have the honour to state that there is no objection to remove chloroform from the list of dangerous articles included under rule 279 of the general rules for working state railways.

No. 321 R. T., dated the 7th June 1893.

RESOLUTION—By the Government of India, Public Works Department.

General rules of 1892 for working open lines of railway in British India administered by the Government.

Alteration in rule 279.

Read—

Section 47 (4) of the Indian Railways Act (IX) of 1890.

Government of India circular No. 3 Railway, dated the 19th April 1892, promulgating general rules for working open lines of railway in British India administered by the Government.

Public Works Department notification No. 174, dated the 7th May 1892, publishing in the *Gazette of India* of the 14th May 1892, the circular and general rules read above.

IV.—CORRESPONDENCE RELATING TO RULE 279, CHAPTER IV, OF THE REVISED RULES, REGARDING "DANGEROUS GOODS"—*concl'd.*

Read also—

Letter No. 172 T., dated the 16th May 1893, from the Director General of Railways.

OBSERVATIONS.—It has been represented that as chloroform is neither corrosive, explosive, nor inflammable, there is no danger in carrying this commodity by railway, and that it may therefore be excluded from the list of dangerous goods prescribed in rule 279 of the general rules referred to above.

RESOLUTION.—The Governor General in Council is pleased, under section 47(4) of the Indian Railways Act (IX) of 1890, to sanction the following alteration in rule 279 of the general rules of 1892 referred to above, being applied to the open lines of all state railways directly administered by Government:—

Rule 279.—Expunge the word and letter "Chloroform B" from the list of dangerous goods.

ORDER.—Ordered, that the General Rules, which have already been published in the *Gazette of India*, dated the 14th May 1892, be further notified to the railway servants, and to the public, by a copy thereof, as herein modified, being kept open to inspection, free of any charge, in the office of the station master of every station on the railways concerned.

Ordered also, that this resolution be communicated to the Chief Commissioners of Burma and Assam, the Director General of Railways, and the Consulting Engineer to the Government of India for Railways, Calcutta, for information and guidance, and that it be published under a notification in Part I of the *Gazette of India*.

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES.

No. 519 G., dated 13th July 1892.

From—The Agent, East Indian railway,

To—The Consulting Engineer to the Government of India for Railways, Calcutta.

With reference to your reminder No. 994 of the 11th July 1892, on the subject of general rules for working open lines of railways in India, and to your No. 1089, dated 25th May 1892, forwarding copy of letter No. 287 R. T., dated 19th May 1892, from the Secretary to the Government of India, Public Works Department, on the subject of the speed of trains over facing points, and enquiring whether the East Indian railway desire to adopt rule 230 of the revised rules in place of 244 of the general rules of 1880, I have the honour to refer you to my No. 460 G., dated 20th June 1892, in which I then stated (1) that the rules are being considered by the heads of departments, and (2) that in my opinion it will probably be desirable to consider the new rules at a railway conference before final introduction on all railways.

Since writing my letter No. 460 G. above quoted, I find from replies received that the heads of departments of the East Indian railway consider many important modifications necessary before these rules could be introduced on the East Indian railway, and in this opinion I concur.

The desirability of general uniformity in such rules on all railways is very great for obvious reasons, and it certainly does not seem a convenient arrangement that each railway should submit a separate set of modifications to be introduced on their own lines only, except it may be in respect of special matters applicable only to the line in question.

For these reasons, which will, I believe, generally be acquiesced in by many of the other railways, I would suggest the desirability of deferring action until the new rules can be considered at a conference.

You are aware that it is contemplated to hold another conference some time next year.

No. 1719 R., dated 13th July 1892.

From—The Joint Secretary to the Government of Madras, Public Works Department, Railway Branch,

To—The Secretary to the Government of India, Public Works Department.

With reference to paragraph 3 of the resolution embodied in Government of India, Public Works Department, circular No. 3 Railway, dated 19th April 1892, I am directed to forward copy of the Proceedings of this Government, No. 1718 R., dated 13th July 1892, and to request that the sanction of the Government of India may be communicated to the adoption on the Madras railway of the general rules for working open lines of railway in British India administered by the Government with the modifications proposed by the Agent and Manager.

Extract from the Proceedings of the Government of Madras, Public Works Department,—
No. 1718-R., dated 13th July 1892.

Read the following papers:—

From the Consulting Engineer for Railways, dated Madras, 1st July 1892, No. 523.
From the Acting Agent and Manager, Madras Railway Company, to the Consulting Engineer for Railways, dated Madras, 30th June 1892, No. 6825-528.

The general rules referred to in circular No. 3 Railway, issued by the Government of India through the Public Works Department from Simla on the 19th April, have been duly considered in a committee of officers which assembled on the 27th instant, and I now have the honour to forward a copy of the notes taken by this committee.

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES—*contd.*

Note 1.—Has reference to the procedure to be observed by the Traffic Manager when the general rules are sanctioned for use on the Madras railway, and it does not seem to require further comment.

Note 2.—At certain stations on the single line between Cuddapah and Arkonam we have an apparatus fixed for holding the line clear ticket, and the Traffic Manager's circular* No. ⁶⁹⁷/₄₀₁₆₅, dated the

* Printed on page 19, *infra*.

10th February 1892, explains the object of this apparatus. Authority is required from the Government of India to substitute a rule for working this apparatus on the Madras railway in lieu of paragraph 4 of rule 18 and paragraph 2 of rule 19 of the general rules.

Note 3.†—On the Madras railway the use of white lights as signal lights has been dispensed with as far as possible, owing to such lights having been confused with white lights on platforms and on overbridges and other elevated structures, and authority is, therefore, required from the Government of India to dispense with the "all right" signal named in rules 78 and 87 (*d*) as far as this signal refers to the exhibition of fixed white lights.

Note 4.‡—The open goods stock of the Madras railway is not fitted with screw couplings, but as a very large number of the trains run over the railway consist of "mixed" trains, the rule, if enforced at once, will result in such trains being run at a loss.

The covered goods stock is being fitted with screw couplings, and, perhaps, when this stock has been attended to, the Locomotive Superintendent may find it possible to take in hand the open stock.

All passenger carriages attached to mixed trains as well as brake-vans, horse boxes, carriage trucks and covered goods wagons are furnished with screw couplings, but the open stock, as I have explained, is not so fitted, and if the rule 185 is to be acted upon, there may be delay to goods traffic carried in open wagons owing to the limited number of our trains.

Between Calicut and Podanur (111 miles) and on the Nilgiri branch there are two trains only run, *viz.*, a mail train and a mixed train, and if rule 185 is enforced, the open stock will not be able to travel over these sections of the line in the absence of loose screw couplings, and I am afraid we have none of these in stock.

Rule 185 was not, I think, discussed at the Conference of 1888, and I am afraid it is a rule that will lead to inconvenience and great expense unless it is in some way modified.

At present we have no sanction to incur the expense of providing the open stock with screw couplings, nor am I aware that sanction for such an expenditure has been asked for.

Note 5.—Experience has shown that lamps are not always reversed as required by the general rule,§ and the opinion of the committee was strongly in

§ *Vide* rule 207.

favour of a group of three red lights being shown at the back of brake-vans instead of a single red (tail) lamp and two white (side) lamps.

The English practice on some railways is to reverse only *one* of the side lamps and to leave two red lights and one white light burning.

Possibly the Government of India will not object to accord permission to the Madras railway showing three red lamps in the rear of a train shunted for another train to pass.

I have the honour, therefore, in accordance with paragraph 3 of the Government of India circular, to apply for the adoption of these rules on the Madras railway with the modifications above noted.

† See also pages 1 to 10 *ante* for further communications relating to these rules.
‡ See also page 11 *ante* for further communications relating to this rule.

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES—*contd.*

General Rules for Indian railways.

Notes by Madras railway (at a meeting held at Bangalore on the 27th June 1892).

Note 1, rule 3 (1) m.—Wherever necessary in the subsidiary rules to be printed in the working time book the "authorised officer" should be specified in each case.

Note 2, rules 18 (4) and 19 (2).—At stations where a special apparatus is used for passing to the driver the written permission to proceed to the next station, the following rule will be observed instead of paragraph (4), rule 18, and paragraph (2), rule 19, of the general rules for Indian railways:—

"When a train is arranged to run through a station without stopping, the station master must himself place the line clear ticket in the hoop provided for the purpose, and will be held wholly responsible to see that it applies to the particular train for which it is given, and that it is properly filled up and dated, with the time added and is signed in full and in ink."

*Note 3, rules 78 and 87 (d).**—Authority is required from the Government of India to allow the Madras railway to dispense with the "all right" signal referred to in rules 78 and 87 (*d*) so far as this refers to the exhibition of a white fixed signal light.

Note 4, rule 185†.—Authority is required from the Government of India to relieve the Madras railway from carrying out this rule in respect to goods vehicles attached to mixed trains.

Note 5, rule 207.—Permission is requested for the Madras railway to allow the side lamps as well as the tail lamp to exhibit red lights to a following train.

Circular No. W. ⁶⁹⁷/₄₀₁₆₅ dated Madras, 10th February 1892.

Instructions for working the apparatus for picking up line clear tickets.

Arrangements have been made for providing an apparatus for picking up line clear tickets at certain stations between Arkonam and Cuddapah.

2. The apparatus consists of a post with a projecting arm on the station platforms from which the line clear ticket is suspended in a hoop. A small cast iron bracket pivotted on a pin is fitted to the handrails of all engines using it, a wooden pole or stick being fixed into the bracket.

3. On approaching a station at which a line clear ticket is to be picked up, drivers will ship the bracket on the special pin provided, holding the stick in their hands and pushing it out, just before passing the post, to the full extent allowed by the stop on the bracket. The stick will then pass through the rattan hoop, picking it off the post. The ticket should be removed and the hoop thrown back on to the platform in the usual manner.

4. Pins are provided on both sides of the engine so that the bracket and stick can be shipped on whichever side is necessary to suit the position of the post at the several stations.

5. The post on the station platforms fits into a cast iron socket level with the platform and it is provided with a catch securing it in two positions. Under ordinary circumstances the pole should be turned round and fixed by this catch so that the projecting arm stands parallel with the rails. When about to be used for the purpose of giving a line clear ticket to a passing train the handle of the catch should be lifted and the pole turned round, the catch being dropped into the second hole so that the arm will then stand projecting towards the train at right angles to the rails.

6. In using the apparatus, the line clear ticket is fastened in between the folds of the hoop in the usual way and the hoop itself pushed up home as far as

* See also pages 1 to 10 *ante* for further communications relating to these rules.
† See also pages 11 and 18 *ante*, and pages 22 and 23 *infra*, for further communications relating to this rule.

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES—*contd.*

it will go, between the jaws of the cast iron pincers which will hold it firmly until it is picked off by the stick on the passing engine. A light from a hand lamp should be thrown upon the hoop when the driver is approaching, and it will be necessary to occasionally put a drop of oil on the pin, on which the pincers are pivotted, to ensure their working freely.

7. The stations provided with the apparatus are—

Nagari,	Peddapad,
Pudi,	Urampad, and
Mamandur,	Reddipalle,

and each station has been provided with a set of hoops.

8. The apparatus will be first brought into use on the 15th instant for the mail trains and thereafter will be used regularly for trains which run through any of these stations.

C. E. PHIPPS,

Loco. Superintendent.

LOUIS S. MOSS,

Traffic Manager.

Submitted to Government for submission to the Government of India in accordance with paragraph 3 of resolution published in circular No. 3 Railway, of 19th April 1892, communicated in G.O. No. 1406 R., dated 3rd June 1892.

2. The proposed modifications are few and are made to meet local conditions of working. It is recommended that they be accepted by the Government of India and that the revised rules be sanctioned for adoption on the Madras railway.

Order thereon by the Government of Madras, Public Works Department.

ORDER.—Ordered, that the sanction of the Government of India be obtained to the adoption on the Madras railway of the general rules for working open lines of railway in British India administered by the Government with the modifications proposed by the Agent and Manager.

No. 1379 T., dated 29th August 1892.

From—The Consulting Engineer to the Government of India for Railways, Central Division,

To—The Secretary to the Government of India, Public Works Department.

With reference to paragraph 3 of Government of India, Public Works Department, circular No. 3 Ry., dated 19th April 1892, desiring that the Agents and Managers of railways not worked directly by the Government of India, might be invited to submit an application for the adoption by their lines of the new general rules for state railways worked directly by Government sanctioned by the above circular, I have the honour to submit, for orders, copies of the marginally-noted letters from the Agents of the Indian Midland and Bengal-Nagpur railways suggesting that the new rules should be first considered by a railway conference.

No. 171 B., dated 18th August 1892, from Agent, Indian Midland railway.

No. 8281, dated 18th August 1892, from Agent and Chief Engineer, Bengal-Nagpur railway.

No. 171 B., dated 18th August 1892.

From—The Agent, Indian Midland railway,

To—The Consulting Engineer to the Government of India for Railways, Central Division.

In reply to your No. 368 T., dated 19th May 1892, I have the honour to inform you that an examination of the new general rules for working open lines, shows that they differ in many important respects from the rules now in force. I think, therefore, they should be fully considered before being adopted, and that, if practicable, uniformity in such rules on all railways should be secured, and that in view to this it would be well to defer taking action on them, till they could be considered at a conference.

I should be glad if you are able to make representations to Government accordingly.

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES—*contd.*

No. 8281, dated 18th August 1892.

From—The Agent and Chief Engineer, Bengal-Nagpur railway,

To—The Consulting Engineer to the Government of India for Railways, Central Division.

With reference to your No. 880 T., dated 17th May 1892, forwarding copies of the new general rules for railways, I have the honour to suggest that a meeting should be arranged for at which representatives of the different railways in India could discuss the proposed alteration. It might perhaps be convenient to do this at the next Railway Conference.

2. The form in which the old rules are compiled is a very convenient one to the staff, though it leads to the repetition of many of the rules.

3. I would suggest it is an open question whether the old form should not be retained with the addition in their proper places of all the new rules that have been included in new general rules which it is now proposed to introduce.

No. 069, dated 20th September 1892.

From—The Consulting Engineer to the Government of India for Railways, Lucknow,

To—The Secretary to the Government of India, Public Works Department.

With reference to circular No. 3 Railway, dated 19th April 1892, I have the honour to submit copies of the correspondence, noted below, with the Agent, Bengal and North Western railway, for such orders as may be considered necessary.

2. The correspondence with the Agent, Rohilkund and Kumaon railway, is, as might be expected, merely a repetition of the letters forwarded herewith.

3. I am of opinion that the head guard of all trains should be able to read English fluently, and that native drivers should only receive line clear from the head guard of their own train, who would be held responsible that all remarks on the line clear were read to the driver. The other points raised appear to call for no further remarks from me.

No. 12608 T., dated 8th July 1892.

From—The Agent and Chief Engineer, Bengal and North Western railway,

To—The Consulting Engineer to the Government of India for Railways, Lucknow.

With reference to the general rules for working open lines of railways in British India administered by the Government, accompanying Government of India circular No. 3 Railway, dated 19th April 1892, sent with your letter No. 281 G., dated 17th May 1892, I have the honour to request the sanction of Government to these general rules being adopted on this railway with the following modifications:—

Rule 19 (1).—Native drivers, as a rule, do not understand English, and it will, therefore, be impossible for a man of this class to satisfy himself of the correctness of the line clear message made over to him by the guard of the train, and the guard should, therefore, be held solely responsible with drivers of this class that the "written permission has been properly filled up and applies to his train."

Rules 18 (2) and 19 (3).—On railways, such as the Bengal and North Western railway, where the traffic is chiefly worked by mixed trains with heavy loads, unnecessary detentions can be avoided at stations if the following procedure is carried out.

"On arrival of a train at a station, the guard will at once sign the line clear message and counterfoil, entering the time of arrival only in the former, which will be forthwith taken by the second guard or brakesman, and made over to the driver; if shunting has to be done it will be retained by the second guard until shunting has

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES—*contd.*

been finished, and then made over to the driver, who will however not start until he receives a signal from the head guard of his train. While the line clear message is being taken to the driver by the second guard, the head guard will receive and deliver packages, and seat and attend to passengers. On giving the driver the signal to start, the head guard will enter the time of departure in the counterfoil of the line clear message.

"In the case of the train crossing another, the station master will not make over the line clear message to the guard until the other train has arrived and is clear of the points."

Under the general rules such a procedure is prohibited, and I would suggest that the sixth line of rule 18 (2) be altered as follows:—

"One of the train or station staff duly authorised,"
and that rule 19 (3) be altered as follows:—

"The written permission when a train is timed to stop at a station is never to be given to the driver until the train is ready to start, or in accordance with rules laid down by the authorised officer; and when waiting, etc., etc."

*Rule 185.**—This rule does not appear applicable to metre gauge lines which have the central buffer and draw-bars. None of the goods vehicles on this line are fitted with screw buffers and draw-bars.

No. 550 G., dated 20th July 1892.

From—The Consulting Engineer to the Government of India for Railways, Lucknow.

To—The Agent and Chief Engineer, Bengal and North Western railway.

With reference to your No. 12608 I., dated the 8th July 1892, I have the honour to remark as follows:—

2. *Rules 18 (2) and 19 (3).*—The rules published by the Government of India appear to cover the alteration suggested by you, as the word "Guard" is defined to cover the "Under Guard" (see page 2).

3. *Rule 185** appears to contemplate that all vehicles attached to trains carrying passengers should be provided with screw-couplings, with which I agree. Would you be kind enough to state your reasons why such a rule should not be applied to the Bengal and North Western railway, if not at once, then from some date in the near future.

4. I would also be obliged by your stating what rules you would propose to meet the case of drivers who are unable to read, and how such are to be distinguished from those who do know how to read. If a driver does not know how to read, it is clear that the guard must read any remarks in the line clear to him, and it is also clear that some method must be taken by which the guard will be made to know that he has to deal with an illiterate driver.

No. 14005, dated 10th September 1892.

From—The Agent and Chief Engineer, Bengal and North Western railway,
To—The Consulting Engineer to the Government of India for Railways, Lucknow.

With reference to your letter No. 550 G., dated 20th July 1892, I have the honour to remark as below:—

2. *Rule 185**—This was not intended when discussed and recommended at the Conference of 1888 to apply to metre-gauge vehicles.

* See also pages 11, 18 and 19 *ante* for further communications relating to this rule.

V.—CORRESPONDENCE AND NOTES RELATING TO THE GENERAL MODIFICATION OF THE REVISED RULES—*concl.*

The ordinary central buffer and draw-bar of the metre-gauge vehicles is a perfectly safe coupling and for goods vehicles is much better suited than the central screw coupling used on metre-gauge passenger vehicles.

3. *Rule 19 (1).*—On the Eastern Bengal, and East Indian railways I understand that the rule is that all guards, European, Eurasian and native, must be able to read and write English, and that if the driver is a native, he is to receive the line clear or cautious message, from no other person than the guard of his own train.

With native drivers the guard is thus responsible for the correctness of the line clear or cautious message, and the rules should be altered to admit of this.

4. I consider the rules for working open lines of railway, as recently published by the Government of India, should be discussed at the next Railway Conference before they are generally adopted.

No. 572 R.T., dated the 29th September 1892.

RESOLUTION—By the Government of India, Public Works Department.

General rules for working open lines of railway in British India administered by the Government.

Read—

Paragraph 3 of the Resolution embodied in Government of India circular No. 3 Railway, dated the 19th April 1892.

Read also—

Letter No. 30, dated the 22nd August 1892, from the Secretary, Railway Conference, as follows:—

With reference to paragraph 3 of the Resolution embodied in circular No. 3 Railway, dated 19th April 1892, I am directed to report, for the information of the Government of India, that certain railways have proposed that the revised general rules of 1892 for state railways administered by Government, should be discussed at the ensuing conference in order to render them suitable for adoption on all open lines of railway in India.

2. I am accordingly to suggest, for the consideration of the Government of India, the expediency of deferring action under paragraph 3 of the resolution referred to above until the recommendations of the conference have been received.

RESOLUTION.—As a proposal has been made to discuss the revised general rules for open lines of railway in British India administered by the Government at the forthcoming Railway Conference with a view to the general adoption of the rules on all open lines of railway, the Governor General in Council is pleased to direct that the results of the conference may be awaited before formal applications, under paragraph 3 of the above resolution, are invited from the Agents and Managers.

The Governments of Madras, Bombay and Bengal, Public Works Department.
The Chief Commissioner of Assam, Public Works Department.
The Resident at Hyderabad, Public Works Department.
The Agent to the Governor General for Rajputana, Public Works Department.
The Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow and Central Division.

ORDER.—Ordered, that this resolution be communicated to the Local Governments, Administrations, and to the officers noted in the margin, for information and guidance.

Ordered also, that this resolution be forwarded, for information, to the Governments of the North-Western Provinces and Oudh and the Punjab; the Chief Commissioners of the Central Provinces and Burma; the Resident in Mysore; the Agents to the Governor General for Central India and Baluchistan; the Director General of Railways, and to the Accountant General, Public Works Department.

VI.—INTRODUCTION OF A RULE, IN THE GENERAL RULES, FOR PROHIBITING PASSENGERS IN TRAINS USING PRIVATE KEYS.

No. 7503, dated 14th January 1893.

From—The Agent and Manager, Madras railway,

To—The Secretary, Railway Conference.

Our Traffic Manager brings to notice that railway carriage keys are now being freely sold in India, and 3rd class passengers are beginning to use them for the purpose of entering carriages when the tickets have already been examined and the doors locked. As, apparently there is no rule at present under which this can be prohibited, our solicitors have been consulted, and they write as follows:—

"The only section under which a rule on the subject could, we think, be made is section 47. That section empowers every railway company to make general rules consistent with the Act for (*inter alia*) the following purposes (b) for providing for the accommodation and convenience of passengers, and (g) generally for regulating the travelling upon and the use, working and management of the railway. If a person enters a railway carriage he does so presumably for the purpose of using the railway, and we think a rule somewhat to the effect of that enclosed might be made by the company to meet the case put in your letter under reply. Such a rule would prevent persons opening the door of a railway carriage for the purpose of either entering it or leaving it, for he could not do either without using the railway which includes all land within the fences or other boundary marks indicating the limits of the land appurtenant to a railway.

"A rule made under section 47 of the Act requires the sanction of the Governor General in Council and to be published in the *Gazette of India*."

Proposed rule.

"No person shall enter or leave any railway carriage by any door thereof which has been locked unless such door shall be opened by a servant of the company. Any person committing a breach of this rule shall be punished with fine which may extend to any sum not exceeding fifty rupees."

2. The matter has been referred to the Consulting Engineer for Railways, Madras, who suggests that as the question is one of general interest to all railways it would be advisable to have it discussed at the Conference.

3. I have therefore the honour to request that it may be added to the list of subjects for discussion at the next Conference.

APPENDIX A TO QUESTION NO. 1A.

CORRESPONDENCE AND NOTES RELATING TO RULE 244 OF THE GENERAL RULES OF 1880, WHICH WAS SUBSEQUENTLY MODIFIED BY THE FOLLOWING RULE 230 OF THE GENERAL RULES OF 1892.

"Drivers must not pass through facing points at a speed exceeding ten (10) miles an hour, or such lower rate as may be prescribed by special instructions.

"If, however, the points are locked with a signal and automatically fastened in a manner approved by an Inspector of railways appointed under the Indian Railways Act (IX) of 1890, they may be passed over at a speed not exceeding twenty (20) miles an hour."

Enclosure to letter No. 387, dated the 4th July 1891, from the Secretary, Railway Conference.

Proposed modification of rule 244 of the general rules for working Indian railways.

Rule 244* of the general rules for working Indian railways provides that—

"Drivers must not pass through facing points at a speed exceeding 10 (ten) miles an hour."

The working of this rule was discussed at the Railway Conference of 1880, and although there was a tendency to increase the limit of speed fixed, nothing was finally settled, and the present limit of speed was sanctioned by the Governor General in Council under Public Works Department resolution No. 17, dated 21st August 1880.

2. It has now been suggested that the restriction of speed of 10 miles an hour might either be withdrawn altogether, or rule 244, referred to above, modified so as to allow of a speed of 20 miles an hour in all cases where facing points are fitted with disc signal detector and locking bars, the signal and locking bars being connected.

3. It has been ascertained that the Board of Trade in England have not made any general order with regard to the speed of trains passing through facing points, but in the memorandum of requirements in respect to new lines of railway made under the Regulation of Railways Act, 1889, the Board of Trade have laid down that—

"The facing points should be provided with apparatus which will ensure the points being in their proper positions before the signals are lowered, and which will prevent the signalman from shifting the points whilst a train is passing them, and, as an additional precaution, means should generally be provided for detecting any failure in the connections between the signal cabins and the points. Facing points should be avoided as far as possible, but when used they should be secured by facing point locks and locking bars; the length of the locking bars should exceed the greatest distance between the adjacent wheels of passengers' carriages, and the stock rails should be tied to gauge with iron or steel ties. When facing points cannot be dispensed with, they should be placed as near as possible to the levers by which they are worked or bolted, and in no instance at a greater distance than 180 yards from those levers. All points, whether facing or trailing, should be worked or bolted by rods and not by wires."

APPENDIX A TO QUESTION NO. 1A—*contd.*

CORRESPONDENCE AND NOTES RELATING TO RULE 244 OF THE GENERAL RULES OF 1880, WHICH WAS SUBSEQUENTLY MODIFIED BY RULE 230 OF THE GENERAL RULES OF 1892—*contd.*

4. The Consulting Engineer to the Government of India for State Railways, whose opinion was invited on the subject, considers that rule 244 might be modified as follows:

"Drivers must not pass over facing points at a greater speed than 10 miles an hour unless the facing points are provided with apparatus, which will ensure the points being in their proper position before the signals are lowered, and which will prevent the pointsman from shifting the points while a train is passing over them.

"When worked from a cabin the facing points must be secured by facing point locks and locking bars. The length of the locking (or treadle) bar must exceed the greatest distance between the adjacent wheels of passenger vehicles, and the stock rails must be tied to gauge with iron or steel ties.

"Such facing points must be as near as possible to the levers by which they are worked, in no case exceeding 150 yards. They must invariably be worked by rods. When thus provided, there is no restriction as to speed over facing points."

5. The Director General of Railways considers that, in addition to the precautions suggested by the Consulting Engineer, only trains fitted with continuous brakes should be allowed to pass through facing points at a speed of 20 miles an hour.

Note by the Officiating Consulting Engineer to the Government of India for State Railways (Mr. F. R. Bell) on "locking and indicating switches" at railway stations where points are not grouped, which formed an enclosure to letter No. 397, dated the 28th September 1891, from the Secretary, Railway Conference.

It may be well to expand the objection taken in para. 5 of Observations* on 'speed through facing points' which bear, I take it, on the imperfect protection afforded in our case by detector and locking (treadle) bars. Though generally known it may not be sufficiently recognised that a switch treadle bar only acts while a train is on it, and offers no guarantee against a pointsman bringing a train on by signal and at the last moment changing the points in the driver's face.

It is true that, in doing so, he must return the signal, if interlocked, to danger, but as he is quite free to do so after the engine is too near to pull up, it is very clear that this apparatus leaves the train at the mercy of a vacillating pointsman both out here and at home; but with this difference, that at home, where the lines are double, he can at most produce a following collision like that at St. Meade, while here, at single line crossing stations, which I take to be mainly if not only in question, an infinitely inferior class of men has unequalled facilities for producing head to head as well as trailing collisions.

2. It has been suggested that a series of treadle bars extending for, say, half a mile beyond the facing points, at intervals less than the shortest train length (neglecting cases of light engines, &c.) would remedy this undoubted defect; but as no authority has yet sanctioned the use of rods beyond 180 yards, while it is improbable that one man can lift a single treadle bar long enough to cover a bogie carriage—far less a series of six or eight such—this idea apart from cost appears impracticable.

3. So far as preventing tampering with switches goes, it is by no means clear that a treadle locking bar is any safer than the common and crude expe-

APPENDIX A TO QUESTION NO. 1A—*contd.*

CORRESPONDENCE AND NOTES RELATING TO RULE 244 OF THE GENERAL RULES OF 1880, WHICH WAS SUBSEQUENTLY MODIFIED BY RULE 230 OF THE GENERAL RULES OF 1892—*contd.*

dient of a bolt and padlock, and that the main virtue of the treadle lies in the facility for unlocking and changing it, which seems to me a danger in our case. A padlock, if it shut with a spring, will lock as quickly as any other apparatus, and to my mind the delay involved in sending out a key to unlock it is of no moment where trains follow at line clear intervals.

4. Holding this view, I have been at some pains to design an arrangement of a signal arm that stands level when its switch is unlocked, and can be pressed down once the switch is accurately set so as to lock the points and indicate by the end that is depressed whether the switch is locked to the right or to the left. Anybody in fact can set and lock such points, but no one can lock them without indicating the fact plainly to all concerned, and no one can unlock them at all unless entrusted with the key by the station master, nor can they be then unlocked without the horizontal arm giving a danger signal for that switch.

5. According to para. 2 of the Conference paper* under discussion, disc signals for points have been proposed, but I take some exception to the use of rotating discs as switch-signals, for the ordinary plan of a white disc showing the points to be set left, and green for right is not, I think, nearly distinct enough to warrant a driver in running through a switch at 20 miles an hour; and what is worse the disc gives no explicit danger signal when the points are not locked. An arm showing / or — or \, if but three feet long when used as a ground signal, or as long as may be desired if raised, seems to me to obviate these objections, and I advocate restricting the use of discs to switches that are only used for shunting purposes and are never to be traversed by running trains—whether "through" or "stopping."

6. There is some difficulty at single line stations in signalling all the routes that might be traversed—from a cabin by semaphores, for the Board of Trade limit of 180 yards length of rods makes it impossible to work a single line yard from one box in India, where trains are sometimes nearly thrice that length, and the difficulty of slotting two boxes together, so that one man shall not bring the up-train in, on the same line that the other has set for the down-train, are enormous, where every switch at either end and at intermediate cross-overs is or may be a facing switch. Personally, I would sooner trust the station master (after seeing from local indices that the switches are set and locked) to admit opposing trains as at present by his main and distant signals only, and on that plan the idea of setting and locking each switch by hand without the intervention of rods or wires is not only cheapest, but allows the points to be used for shunting operations, which can hardly be properly managed from cabins.

7. If the principle of having a local indicator for and at each switch is approved of, the question arises of how to light it at night. I think it essential to show not only the three conditions of, "not locked", "locked left" and "locked right", but also which switches lie facing and which trailing to the observer. On these conditions a disc which cannot, so far as I see, show the danger or not locked position at all, would want four colors to show facing right, facing left, trailing right and trailing left. In the same way the arm signal, I prefer, if used with a single lamp, would have to show six changes of color, and in short I recommend the use of two lamps which either stand level or dip exactly as the arm does, and are distinguished as between facing and trailing by colors. One arrangement that suggests itself and is easily effected makes the two lamps purple in the trailing direction, to indicate solely by relative position,—while the facing lights, besides changing position from level to dipped, show two reds when level, and red above with green lowered when dipped. I think that the use of white lights should be entirely debarred in these and in all signals whatever. The question of whether the signal is to be raised or near the ground is one for each administration to decide for itself.

APPENDIX A TO QUESTION NO. 1A—*contd.*

CORRESPONDENCE AND NOTES RELATING TO RULE 244 OF THE GENERAL RULES OF 1880, WHICH WAS SUBSEQUENTLY MODIFIED BY RULE 230 OF THE GENERAL RULES OF 1892—*contd.*

8. I may add here that the Superintendent, Way and Works, North Western railway, who had the advantage of studying a large English yard in detail on the ground before his six years' connection with Indian open lines began—while apprehending no difficulty in working single line facing and shunting switches on Saxby and Farmer's system—prefers a new arrangement that he is engaged in perfecting, by which the switches are to be worked by hand and locked by the station master, who cannot lower the desired signal so long as any switch on the desired path for the train is wrongly set. It is to be feared that the various locks would have to be operated by wires, and that a breakage would not only release the lock but might induce the pointsman to believe that his switch had been intentionally unlocked with a view to its being changed. Mr. List, the officer in question, takes exception to any index of how the points are set other than a signal that entitles the train to proceed, on the ground that such indices form "*permissive signals*"; but here I cannot agree with him, for the permission to run through the points is given by semaphore, and not by the index, which only shows how the points stand.

Note, dated the 25th October 1891, by Mr. F. E. ROBERTSON, Chief Engineer, East Indian railway, on locking facing points.

I assume that the point raised in No. 397* of 28th September 1891, from
* i.e. in enclosure to that letter, Secretary, Railway Conference, refers exclusively to the case of roadside stations through which it is desired to pass trains at speed on the straight road whether that be the platform road or not.

2. Before discussing the details of any signalling, it is quite necessary to define clearly what this signalling has to do, and the principle followed should be the same for all Indian railways.

3. On the East Indian railway, the straight road is always in the same position (the up side), but this is not the case on other lines, and it is too much to tax the memory of the driver of a fast train with such a detail as whether safety at any particular station lies to the right or left. Even on the East Indian railway the indications would be reversed on the up and down journey in a right and left signal. Clearly then the signal should indicate straight road or turn-out.

4. Mr. J. R. Bell's device comprises in itself an absolute signal (that the points are locked) a point lock and a detector bar *if the key is kept by station master*, but it does not to my mind solve the difficulty because—

- (a) A shunting engine must pass a red light (which is *inadmissible*) unless the points are locked and unlocked at each movement.
- (b) For the reasons given in paragraph 3 a right and left signal is useless.

I also think the indication to the driver is not clearer than the disc.

5. Semaphores apply only to running trains, but ground signals to *all* trains. They are the signals which in an interlocked yard block the sidings and are absolute when at danger; they cannot therefore be passed under any circumstances.

A stopping train at a single line station might require to be put upon either road, therefore the indicator cannot tell the driver whether he ought to proceed or not. That must be left to the main signals set by the station master after verifying the indications of the points. I do not at present see a satisfactory way of giving on Mr. Bell's system the three indications I hold indispensable, *viz.*, unlock, straight road, turn-out.

6. The only solution I can find is to have a special signal for fast trains interlocked with the points; or rather as signals in *different* places of a yard are

APPENDIX A TO QUESTION NO. 1A—*concl.*

CORRESPONDENCE AND NOTES RELATING TO RULE 244 OF THE GENERAL RULES OF 1880, WHICH WAS SUBSEQUENTLY MODIFIED BY RULE 230 OF THE GENERAL RULES OF 1892.—*concl.*

objectionable for want of landmarks at night, I would suggest a double-armed home signal, upper arm for through, and lower for stopping trains. This is absolute assurance to a driver that the points are set and locked and is no tax on his memory.

The signal should be at the points and of the type (see sketch) fixed by me as a starting signal at Hathras and other places where a train might be started on the wrong line. The lower arm should *not* interlock with the points, as it may be required to admit a goods train on either road.

The arrangement could also be fitted to the home signal on platform, but as the connexion must then be made by rod it would be expensive and troublesome, whereas with the signal at the points it could be made by wire.

7. I observe in the enclosure* to letter No. 387 of July 1891, the Consulting Engineer gives 150 yards as the proposed limit of distance for facing points. I would deprecate any alteration in the English rule of 180 yards from the cabin.

* *Vide* page i, ante.

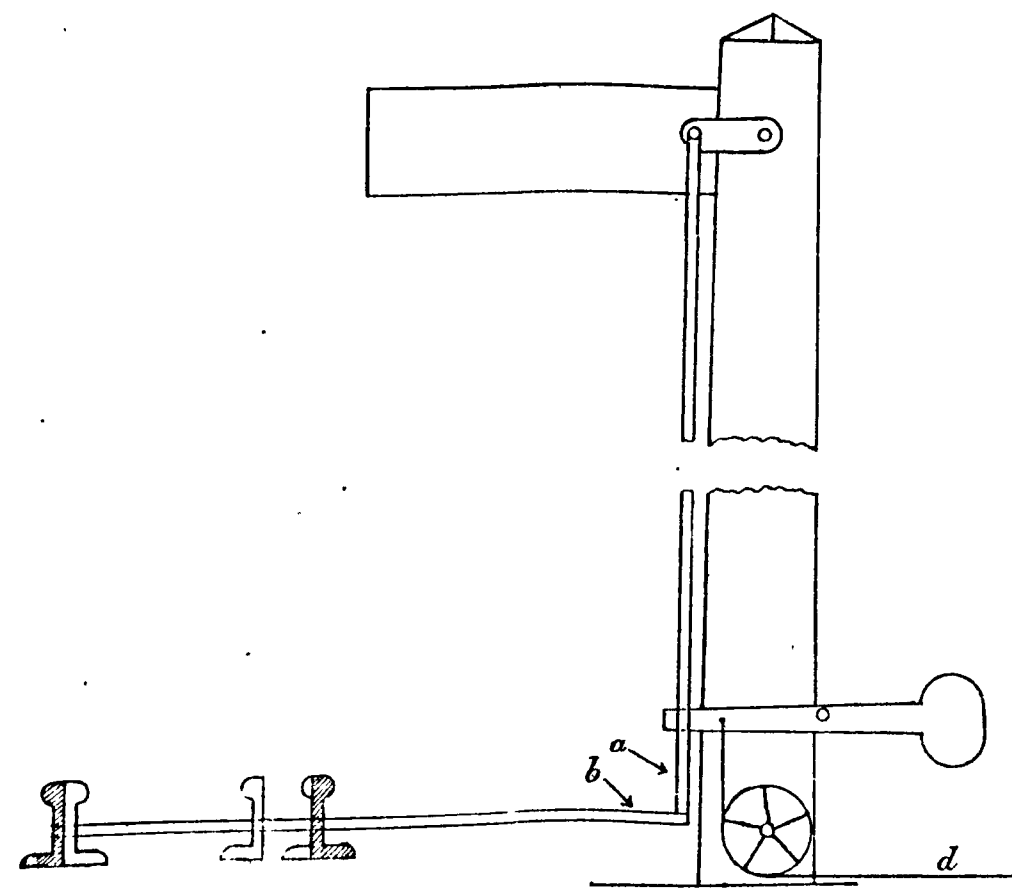


Diagram of starting signal.

- (a).—Plug on signal rod passing through.
- (b).—Hole in switch rod.
- (d).—Wire from platform.

No. 112.

FROM

THE SECRETARY,
RAILWAY CONFERENCE OF 1893,

TO

THE AGENTS, BOMBAY, BARODA AND CENTRAL INDIA, GREAT INDIAN PENINSULA,
EAST INDIAN, SOUTH INDIAN, SOUTHERN MAHRATTA, AND INDIAN MIDLAND
RAILWAYS.

THE AGENTS AND CHIEF ENGINEERS, BENGAL AND NORTH WESTERN, ROHIL-
KUND AND KUMAON, AND BENGAL-NAGPUR RAILWAYS.

THE AGENTS AND MANAGERS, MADRAS, AND HIS HIGHNESS THE NIZAM'S GUARAN-
TEED STATE RAILWAYS.

THE MANAGERS, NORTH WESTERN, EASTERN BENGAL STATE, OUDH AND ROHIL-
KHAND, BURMA STATE, AND JODHPORE-BICKANEER RAILWAYS.

THE MANAGER AND ENGINEER-IN-CHIEF, BHAVNAGAR-GONDAL-JUNAGARH-PORBAN-
DAR RAILWAY.

THE AGENT AND GENERAL MANAGER, DARJEELING-HIMALAYAN RAILWAY.

THE SECRETARY, CALCUTTA PORT COMMISSIONERS' RAILWAY.

Simla, the ^{21st} August 1893.

SIR,

In continuation of my letter No. ¹⁰⁰ ~~46~~, dated the ^{16th} ~~9th~~ December 1892, forwarding lists A and B of the subjects to be placed before the Railway Conference of 1893, I am directed to forward a copy of the papers relating to question (s) No. (s) ~~1, 2, 4, 12, 13~~ of list ~~A~~ referred to, viz.,

- No. 1. A. Consideration of the Genl. rules for working open lines of Rly. in British India.*
No. 2. A. Revision, if necessary, of the Genl. rules for working rlys. under construction.
No. 4. A. Method of calculating the charges for the use of rolling stock.
No. 12. A. Reconsideration of various regulations passed at the Rly. Conference of 1888.
No. 13. A. Free allowance of passengers' luggage.

I have the honor to be,

SIR,

Your most obedient Servant,

W. J. Burd
Secretary.

Documents accompanying.
(As noted above.)

Free copies of each question.

OW ^{E1}
7410/93

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No. 113, dated the 2nd August, 1893.

Copy, with copy of papers referred to, forwarded, for information, to the Secretary to the Government of India, Public Works Department; the Joint Secretary to the Government of Madras, Public Works Department (Railway Branch); the Secretary to the Government of Bombay, Public Works Department (Railway Branch); the Secretary to the Government of Bengal, Public Works Department; the Secretaries to the Chief Commissioners of Burma and Assam, Public Works Department; the Secretary to the Resident at Hyderabad, Public Works Department; the Secretary to the Agent to the Governor General for Rajputana, Public Works Department; the Consulting Engineers for Railways, Bombay and Madras; the Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, Central Division, and Assam; the Agent, West of India Portuguese railway; the Agents and Chief Engineers, Assam-Bengal, and Bengal Central railways; the Managers, Cherra-Companyganj, and Jorhat railways; the Agent and General Manager, Dibrusydia railway; the Manager and Executive Engineer, Morvi railway; the Managing Agents, Deoghur, and Thaton-Duyanai railways; the Secretary and Agent, Nilgiri railway; and the Engineers-in-Chief, Mushkaf-Bolan, Mari-Attock, East Coast, Bhopal-Ujjain, and Bina-Guna railways.

By order,

H. F. Hunt
Secretary.
112
21.8.93

Documents accompanying.

(As noted overleaf.)

Five copies of each question.

*The Joint Secretary to the Government
of Madras P.W.D. Railway Branch, Madras.*

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Encls 6 (4 S.C. 5/1st time
Encls 1 S.C. 6/2nd time
Encls 1 S.C. 6/3rd time)
Recd: 28.8.93

¹³
No. 1186 R 27 Sept 93.
Communicated to
the Examiner General Rail-
way Accounts.

Wm R
6/9

RECEIVED
1893

By Examiner Genl. Accs.

J.C. 1/99 112

APPENDIX A TO QUESTION No. 13 A.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 13 A.

No. 6005 T., dated the 10th May 1893.
From—The Acting Agent, Bombay, Baroda and Central India (including
Rajputana-Malwa) railway,
To—The Secretary, Railway Conference.

With reference to the Note by the Traffic Superintendent, Oudh and Rohil-
khand railway, regarding notice of alterations in timings of trains, Question
No. 13-A. for the next Railway Conference, I have the honour to state that I am
entirely in sympathy with the motion, but consider that it would be better to
refer disputed points to a Committee composed of one member from each of the
principal railways in India, than to leave them for the final decision of the
Director General of Railways.

APPENDIX A TO QUESTION No. 17 A.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 17 A.

No. 8529 T., dated the 6th July 1893.

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

With reference to the paper circulated under subject 17 A, regarding refunds on lost or unused halves of return tickets proposed for discussion at the Railway Conference of 1893, I have the honour to forward herewith copy of a Note by the Acting General Traffic Manager of this railway, in which I concur.

OFFICE NOTE No. G. 8406, DATED THE 3RD JULY 1893, BY THE ACTING GENERAL TRAFFIC MANAGER, BOMBAY, BARODA AND CENTRAL INDIA (INCLUDING RAJPUTANA-MALWA) RAILWAY.

Refunds on lost, unused, or expired halves of tickets.

The question proposed for discussion at the next Railway Conference by the Manager, Eastern Bengal state railway, was also discussed at the last Railway Conference, but the proposition then made was not carried out.

2. It does not appear necessary to disturb the existing regulations No. 38 e. and f., which were passed at the Conference of 1888. So far as I am aware, no difficulty has been experienced on this railway in the working of this rule.

3. It seems to me that the words "except under special circumstances" in regulation No. 38 e. meet all our requirements.

APPENDIX A TO QUESTION No. 19 A.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 19 A.

No. 4644 T., dated the 10th April 1893.

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

With reference to the Note by the Traffic Superintendent, Oudh and Rohilkhand railway, as to what charge should be made for extra copies of coaching and goods tariffs supplied to foreign railways, circulated as Question No. 19-A. for discussion at the next Railway Conference, I have the honour to state that in my opinion a foreign railway obtaining copies of tariffs of another railway for the use of its local stations, should pay the actual cost of publication plus a certain percentage for supervision, say 10 per cent.

APPENDIX A TO QUESTION NO. 21-A.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION NO. 21-A.

No. 10119 T., dated the 9th August 1893.

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

With reference to question No. 21-A of subjects to be placed before the Railway Conference, I have the honour to forward herewith a copy of a note by the Acting General Traffic Manager on the subject of issuing return tickets for dogs, and to state that I concur in the opinion expressed therein.

Copy of General Traffic Manager's office note, dated the 29th July 1893.

Question No. 21-A., Return Tickets for dogs.

It appears to me that it would be a convenience to the public if return tickets for dogs accompanying passengers or travelling by the same train as their owner, were issued.

The charge for the single journey for a dog is at the rate of four annas per head for every fifty miles, or about one pie per head per mile. Return journey tickets should, it seems to me, be charged for at two single journey fares.

APPENDIX TO QUESTION No. 23 A.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION NO. 23 A.

No. 668o T., dated 25th May 1893.

From—The Acting Agent, Bombay Baroda, and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

With reference to subject No. 23 A to be placed before the next Railway Conference, I have the honour to forward herewith copy of letter No. G. 6288, dated 19th May 1893, from the Acting General Traffic Manager of this railway, and of its accompaniment, dealing with the question of liability of railways to each other for passenger's luggage transferred at junctions. I agree with that officer that it would be difficult to lay down any hard and fast rule fixing the responsibility in such cases, and am of opinion that each case should be dealt with on its own merits.

No. G. 6288, dated 17th May 1893.

From—The Acting General Traffic Manager, Bombay, Baroda and Central India railway,

To—The Acting Agent, Bombay, Baroda and Central India railway.

Questions to be placed before the Railway Conference of 1893 for decision.

With reference to your endorsement No. 531o T. of the 25th April 1893, in regard to the question of liability to railways to each other for passengers' luggage transferred at junctions, I have the honour to forward herewith copy of Traffic Superintendent's letter No. C. M. ³⁹⁸/₁, dated 6th May 1893, which puts the case very clearly.

2. It seems to me that it would be a difficult matter for any Conference of railway managers to decide upon a hard and fast rule for fixing responsibility in such cases. The circumstances of each case must differ and unless the merits of each particular case can be taken into consideration it is difficult to understand how any satisfactory solution of the question can be arrived at. All that the Conference could be expected to do would be to lay down the general principles on which such cases should be decided and these might perhaps be somewhat on the lines indicated in paragraph 2 of Traffic Superintendent's letter, *viz.*, that a receipt passed for any given number of articles should be sufficient to fix responsibility for that number; though such a receipt may not embrace identity of the articles actually despatched.

No. C. M. 398-1, dated 6th May 1893.

From—The Traffic Superintendent, Ajmere,

To—The General Traffic Manager, Bombay, Baroda and Central India railway.

Liability of railways to each other for passengers' luggage transferred at junction.

In returning your memorandum No. 2854 of 26th ultimo, I beg to make the following observations.

APPENDIX TO QUESTION No. 23 A.—*concl.*

2. According to the common, universal practice, by which is established the rule, a receipt given for any number of articles fixes responsibility for that number, though it may not embrace identity of the articles actually despatched from the booking station when identification is rendered most difficult, if not impossible, by the want of description or by the absence of proper marks or address.

3. We know from experience that in the case of passengers' luggage and parcels there is not always sufficient time to enter full particulars on documents carried by guards, and the check, except perhaps in number, would be incomplete, particularly when the number of articles to be handled is large.

4. It often happens in the busy passenger season when luggage vans are crowded that guards relieving one another at changing stations are unable from want of time, especially at night, to check the correctness of all packages individually, they thus count the total number and take their chance for the rest of their responsibility. Similarly, as in the case in question raised by the Indian Midland railway, it is not possible for Agra Fort or any other station receiving luggage from a train to carefully check 100 packages or more, item by item, within the 5 minutes allowed, while the order impressed on the staff is to avoid detention to the mail train. The staff, however, do their best on occasions of this kind. If they fail, it is not from inattention, and the receipts given in guidances on these occasions are not absolutely reliable.

5. On the metre gauge section, the form of guidance used, by means of which check takes place, provides for description of articles, also number and date of way bill, and the labels also show number of way bill, and date. Here, where entries are properly made and time permits, an effective check can be exercised, but there is often not time enough in dealing with the mail trains. If the guidances and labels used on other lines do not afford as much information as ours do, it can be easily understood that for this reason a proper check cannot be effected. It is true that way bills accompany packages, but way bills are often missing and labels in the course of handling, drop off the packages. The difficulty in check is thus enhanced.

6. Under all the circumstances which are favourable sometimes and unfavourable at other times, I do not think any hard and fast rule can be laid down as to liability. My opinion is that any rule required should be an elastic one, that cases arising should be disposed of on their merits and where a doubt unquestionably exists the railways concerned should cheerfully share in the settlement of claim.

7. In the instance quoted by the Midland railway, as I understand the matter, packages were not described by the East Indian railway in their guidance, some way bills were missing and one article was without label, and with further evidence, as stated by the Indian Midland railway, establishing that the luggage was in a confused state when handed over at Tundla, the East Indian railway it seems to me, should have borne the claim or a fair share of it. But it must be remembered at the same time that between the arrival of the East Indian railway train and the departure of the Indian Midland railway train, there was an interval of two hours and 15 minutes at Tundla, more than sufficient time for a thorough check being made, and the Indian Midland railway guard should have been able to place on record before starting all the irregularities in connection with the packages of his train. If he failed to do so, he incurred a responsibility from which the Indian Midland railway can hardly expect to altogether escape. For this reason and assuming the statement of the confused state of the luggage to be correct, I consider that both railways were liable for the missing packages.

APPENDIX A TO QUESTION No. 27 A.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION 27 A.

No. 9457 T., dated the 25th July 1893

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

WITH reference to the papers circulated under subject No. 27 A, I have the honour to forward herewith copy of paragraph 78 of this Company's coaching tariff, regarding the concession allowed to school children travelling over this Company's system. I am prepared to withdraw the restriction as to the concession being confined to parties of not less than 4 and to make the concession applicable to all school children on production of the necessary certificate in each case.

Extract from coaching tariff.

Paragraph 78. School children.—School children of any nationality or creed journeying to or from their homes and schools, in parties of not less than four (which number may include persons in charge, not exceeding one person to each party) will be allowed to travel in 2nd class carriages at intermediate class fares, and in intermediate class carriages at 3rd class fares; half fares being charged in the case of children under 12 and above 3 years of age. This concession will also apply to adult students of recognized schools or colleges, in parties of not less than four, when proceeding to or from their schools or colleges for examination, or other educational purposes, upon a certificate from the Head Master or Principal, but persons travelling in charge of such students will be charged the fares of the class of carriage travelled in. The usual free allowance of luggage will be made according to the class in which they travel. The whole of the party must travel in the same train and from and to the same stations, but not necessarily in the same class of carriage.

(a) The party must hold a written letter of authority from either the General Traffic Manager, Bombay, or the Traffic Manager, Bombay or Ajmere, or the District Traffic Superintendent, Grant Road, Ahmedabad, Abu Road, Bendikui, Sirsa, Fatehgarh or Mhow, specifying the time the concession will remain in force, which is not to exceed two months.

(b) This concession includes the return of the person in charge, provided that the return journey is commenced within a fortnight from the date of completion of the outward journey. Parties holding letters of concession will not be permitted to travel by mail train between Bombay and Delhi, and *vice versa*.

(c) Applications for the necessary authority must be made by the Principal of the school or college.

78a. School pic-nic parties.—School pic-nic parties, consisting of not less than four in number, will be allowed to travel over this Company's system at single fare for the double journey according to the class of carriage occupied; half fares being charged in the case of children under 12 and above 3 years of age.

Applications for the necessary authority must be made by the Principal of the school or college to the General Traffic Manager, Bombay; or the Traffic Manager, Bombay or Ajmere.

APPENDIX A TO QUESTION NO. 3-B.

NOTE, DATED THE 1ST MAY 1893, BY THE PRESIDENT OF THE RAILWAY CONFERENCE.

The note by Mr. H. Bell advocates very low third class fares, and suggests the large reduction of about 40 per cent. on railways serving districts with a population of over 150 to the square mile.

This would truly be "a bold reduction," for it would involve an immediate loss of revenue to the extent of about Rs. 2,00,00,000, with a possible chance of regaining a portion by increased traffic. I say a portion because we should require about three times the present numbers to attain the same financial condition.

But then Mr. Bell says "for my part, I can conceive no more legitimate ground for an expenditure of public money, if unhappily it should be found that the assumption was erroneous."

I am an advocate for low fares, but then they must be fixed to suit the circumstances of each railway and district, and must leave some margin for profit. Passengers should pay their share of the interest on capital outlay and not leave the whole burden of this to the goods traffic. Like the late Colonel Medley and all in favour of a wholesale reduction in order to tap "the mine of wealth," Mr. Bell is sanguine in the extreme. To be an advocate for low fares, it is not necessary to be always crying out for a reduction; there must be some limit, and in my opinion that limit may be taken in the majority of cases at 2 pies per mile. Generally speaking, it will not be found profitable to charge less than this.

2. It is of no use to compare this traffic in India with that in England. Conditions are entirely different, and great caution is necessary in drawing any inference from the figures given in paragraph 2. It has been quite overlooked that in the United Kingdom there is a mile of railway to every $6\frac{1}{2}$ square miles; while in India there is only one to 101 square miles. This alone quite upsets the comparison.

3. The reduction from 3 to $2\frac{1}{2}$ pies on the Eastern Bengal state railway resulted in a loss, and Mr. Bell says "I should have considered this to be the almost inevitable result of a small reduction, viz., of $\frac{1}{2}$ a pie per mile."

Then, further on, he refers to a reduction of $\frac{1}{2}$ a pie which was made on the East Indian railway with a subsequent increase of traffic and quotes this in support of his theory. I do not know how this discrepancy can be explained.

4. The minimum charge for the lowest class was, when Mr. Bell wrote his note, fixed by Government at $1\frac{3}{4}$ pies. This has since been reduced to $1\frac{1}{2}$ pies, the maximum still remaining at 3 pies, the railway administrations being left to exercise their discretion within these limits. But I do not suppose any Manager of any important line would make a wholesale reduction of his fares from $2\frac{1}{2}$ to $1\frac{1}{2}$ pies without taking orders from some higher authority.

APPENDIX A TO QUESTION NO. 3-B—*contd.*

NOTE, DATED THE 16TH JUNE 1893, BY THE PRESIDENT OF THE RAILWAY CONFERENCE.

Since writing my note of 1st May 1893, I have seen a suggestion to reduce the lowest class fares on the Oudh and Rohilkhand railway to $1\frac{1}{2}$ pies, and offer the following remarks which in a great measure bear on the general question.

I cannot think that the Oudh and Rohilkhand railway is a good line for the proposed experiment, and to try it on the Cawnpore branch only would, in my opinion, simply result in a loss of revenue, without affording any reliable *data* on which an argument could be based one way or the other. The line between Cawnpore and Lucknow is quite unsuited for the purpose.

2. The proposal, if applied to the whole line, would, supposing it to be successful in the end, entail a capital outlay on extra stock of upwards of 10 lakhs, and a loss of net revenue of $11\frac{1}{2}$ or 12 lakhs in the first year, and something less in the second and third years. This is, supposing the reduction could be confined to one railway, which would be impossible. From my personal acquaintance with the Oudh and Rohilkhand railway and the nature of its traffic, I am of opinion that to reduce the 3rd class fare from $2\frac{1}{2}$ pies to $1\frac{1}{2}$ pies would cause an annual loss of net revenue for the remainder of the century without any compensating advantage. At present the passenger traffic on this line just pays its share of interest on capital (see Table C) as it should do, and there is no room for such a sweeping reduction of fares as proposed. As stated in my note of 1st May 1893, fares must be fixed to suit the circumstances of each railway and district.

3. Our railway revenues are not just now in such a flourishing condition that we can afford to throw away a "sprat" of even 12 lakhs; and if the experiment is ever tried, it would be better to await a more opportune season and to select a more suitable line. The immediate loss would, as a fact, be much more than 12 lakhs as neighbouring lines would have to reduce also.

4. The reference to "the Cheap Trains London Bill" must be received with caution and taken for what it is worth. In the first place, "the Cheap Trains London Bill" had a well known special object, and to take the fares charged by this train for purposes of comparison with fares generally throughout India is manifestly incorrect, and seems to me to weaken the whole argument. In the second place the coolie on two annas a day cannot fairly be compared with an English workman on 2s. 6d. a day: and to say that there is absolutely no excuse for charging both the same railway fare (which, however, is not done) is about as reasonable as saying that each should be charged for every luxury or convenience in proportion to his income. We have not yet advanced so far on the path of socialism as to make this principle generally practicable.

5. We had better see if we cannot gain some useful knowledge from existing railways in India, and perhaps the history of fares on the Madras railway may teach something.

The $1\frac{1}{2}$ pies fare was introduced on the Madras railway on the 1st July 1886, and no doubt resulted in some increase of traffic. For the year 1885, the third class passenger mileage was 241,359,693, the receipts being Rs. 23,36,178, and for the year 1892 this was increased to 336,845,736, and the receipts to Rs. 23,66,035; what portion of the increase was due to a reduction of fare cannot be said, as of course it is reasonable to suppose that there has been a natural development of traffic which would have taken place without any reduction of charge as in the case of other lines.

But what has been the effect on the net profits?

Has the reduction of fare been a financial success?

Has the mine of wealth been successfully worked?

APPENDIX A TO QUESTION NO. 3-B—*contd.*

These questions cannot be answered with mathematical accuracy, but some inference may be drawn from the figures in the following Table A:

Table A.

MADRAS RAILWAY.

The lowest class fare was reduced from 2 to $1\frac{1}{2}$ pies on 1st July 1886.

		1882.	1883.	1884.	1885.	1887.	1888.	1889.	1890.	1891.	1892.
Average mileage	Miles	859.42	860.86	860.87	860.87	(d) 832.62	839.27	839.28	839.30	839.30	839.26
Fares, 1st class	Pies	18.00	18.00	18.00	18.00	18.00	18.00	(a) 18.00 & (n) 12.00	12.00	12.00	12.00
2nd "	"	7.00	7.00	7.00	7.00	7.00	7.00	(a) 7.00 & (n) 6.00	6.00	6.00	6.00
3rd " by mail	"	2.00	2.00	2.00	2.00	2.00	2.00	(b) 2.00 & (c) 3.00	2.00	3.00	2.50
3rd " ordinary	"	2.00	2.00	2.00	2.00	1.60	1.50	1.50	1.50	1.50	1.50
Total passenger mileage	...	206,613,284	205,891,337	231,813,512	250,153,876	205,684,647	313,393,136	331,620,780	337,519,060	321,884,943	347,304,783
Average annual increase, mileage	...	...	...	...	14,513,528	...	...	...	...	...	10,342,027
Average receipts per passenger mile.	pies	2.27	2.20	2.11	2.08	1.86	1.89	1.84	1.85	1.85	1.79
Total passenger receipts	Rs.	21,47,920	23,59,583	25,45,422	27,11,008	28,65,623	30,84,767	31,80,302	32,53,077	31,13,195	32,35,161
Average cost of hauling a passenger one mile.	pies	1.23	1.11	0.92	0.95	1.15	1.02	1.03	(c) 0.90	1.06	1.04
Total passenger expenses	Rs.	13,23,616	11,89,789	11,10,773	12,37,740	17,71,028	16,64,001	17,78,471	15,82,261	17,77,073	18,81,722
Average profit per passenger mile.	pies	1.04	1.00	1.19	1.13	0.71	0.87	0.81	0.95	0.79	0.75
Net profits due to passengers	Rs.	11,24,304	11,69,794	14,34,649	14,73,268	10,94,595	14,21,866	14,01,891	16,70,816	13,36,122	13,53,439

(a) From 1st July 1889.

(b) From 1st October 1890.

(c) From 1st August 1891.

(d) Decrease due to the transfer of the Bellary branch to the Southern Mahratta railway.

(e) Decrease due chiefly to a reduction of expenditure on account of maintenance.

6. The figures given in the table are the totals and averages of all classes, but they will give a fairly approximate idea of the effect of the reduction of charge for the lowest class, which forms the bulk of the passenger traffic; the tendency of this method will be in favour of the reduction, but in any case it is not possible to separate the several classes in an analysis of this sort. The prominent feature that at once stands out is in connection with the annual increase of the passenger traffic. From the year 1882 to the end of 1885, a period during which the lowest fare was 2 pies a mile, the average annual increase of passenger mileage was 14,513,528, and from the year 1887 to the end of 1892, a period during which the lowest fare was $1\frac{1}{2}$ pies a mile, the average annual increase of mileage was 10,342,027. There is only one inference to be drawn from this, *viz.*, that the increase of traffic due to the reduction of fare was very small; there must, of course, have been some increase due to this cause, but it cannot have been large. This is in reality the whole point on which the question turns, and it leaves little else to be said.

7. Suppose, however, for the sake of argument, the increase due to the reduction of fare was 75 per cent. of the whole increase, which from the figures in the table appears most unlikely. We then have net profits for 1892, Rs. 14,86,680*, if the 2 pies rate had been retained, instead of Rs. 13,53,439 with the reduced fare of $1\frac{1}{2}$ pies. The only conclusion I can come to is that the $1\frac{1}{2}$ pies rate has not been a financial success, and this, I believe, is the opinion of the Agent and General Manager of the railway.

Of all railways in the country I should have selected those in Madras as most suitable for low fares. But it is important to remember that the original fare of 2 pies was low, and, as would appear, about low enough for the districts served.

* 347,394,783 — $\frac{1}{2} \times 97,240,913 \times (2.08 - 1.04)$ pies.

APPENDIX A TO QUESTION NO. 3-B—*contd.*

8. I have had a similar statement (Table B) prepared for the Tirhoot state railway, but as there has been an annual addition to the open mileage, it is difficult to draw any conclusions from the figures; but considering that the net profits from passengers per mile open average for the three years of $2\frac{1}{2}$ pies rate, Rs. 1,177, and for the five years of the $1\frac{3}{4}$ pies rate, Rs. 1,188, it may be assumed, allowing for a small development of traffic from natural causes, that the case is little better than that of the Madras railway, and that the mine of wealth has not been a very paying venture. But in the case of the Tirhoot line, the fare was only reduced to $1\frac{3}{4}$ pies, the reduction on the Madras line being to $1\frac{1}{2}$ pies.

Table B.

TIRHOOT STATE RAILWAY.

The lowest class fare was reduced from $2\frac{1}{2}$ to $1\frac{3}{4}$ pies on 1st January 1885.

	1882.	1883.	1884.	1885.	1886.	1887.	1888.	*1889.
Average mileage ... miles	81.15	101.95	103.10	226.00	240.64	240.52	262.50	273.00
Fares, 1st class ... pies	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
„ 2nd „ ... „	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
Intermediate class ... „	...	...	4.50	4.50	4.50	4.50	4.50	4.50
3rd „ ... „	2.50	2.50	2.50	1.75	1.75	1.75	1.75	1.75
Total passenger mileage ...	10,501,747	24,102,578	31,968,535	47,722,460	59,927,612	73,061,742	74,411,250	77,940,027
Average receipts per passenger mile ... pies	2.71	2.69	2.54	1.89	1.87	1.84	1.85	1.85
Total passenger receipts ... Rs.	2,32,704	3,24,446	4,23,408	4,70,719	5,86,306	7,01,932	7,19,233	7,53,176
Average cost of hauling a passenger one mile ... pies	1.13	1.31	1.58	1.39	1.15	0.94	0.86	0.79
Total passenger expenses ... Rs.	97,120	1,57,627	2,63,074	3,43,005	3,59,941	3,57,713	3,33,300	3,20,279
Average profit per passenger mile ... pies	1.58	1.38	0.96	0.51	0.72	0.90	0.99	1.06
Net profits due to passengers Rs.	1,35,584	1,66,818	1,60,334	1,27,714	2,27,425	3,44,239	3,84,933	4,32,897
Ditto per mile open ... Rs.	1.671	1.630	1.560	1.565	1.565	1.565	1.565	1.565

* Last complete year during which line was worked by the State. The transfer to the Bengal and North-Western Railway Company was made on the 1st July 1900.

9. Looking to the facts and figures, and having a knowledge of the nature of the traffic on the Oudh and Rohilkhand railway, I cannot recommend the proposed reduction from $2\frac{1}{2}$ to $1\frac{1}{2}$ of the lowest class fare on that line.

10. Railways cannot be successfully managed by the adoption of heroic and sweeping measures of this nature, and when the interests at stake are very large, ordinary prudence dictates some amount of caution. Any general reduction of fares on the Oudh and Rohilkhand railway, a line with numerous junctions, practically means a general reduction on railways in Northern India, and gradually throughout the country, and the amount involved is not lakhs but crores.

11. I do not think that, as a general rule, the lowest class fare should be less than two pies a mile, although there are special cases where it is convenient and profitable to place it at $1\frac{1}{2}$ pies.

It seems to me much more important for the good of the country to have low goods rates than non-paying passenger fares; and if we introduce the latter, the Managers of railways will naturally look to the goods to pay not only their working expenses, but also the whole interest on capital, and this is most undesirable.

APPENDIX A TO QUESTION NO. 3-B—*concl.*

Table C.

Statement showing the average cost of hauling a coaching unit, including and excluding interest on capital during the two halves of 1892.

Item of analysis.	OUDH AND ROHIL-KHAND.		MADRAS.		SOUTH INDIAN (INCLUDING PONDICHERRY).	
	1st-half, 1892.	2nd-half, 1892.	1st-half, 1892.	2nd-half, 1892.	1st-half, 1892.	2nd-half, 1892.
79 Average cost of hauling a coaching unit one mile— Per passenger unit ... Pies.	0.70	1.13	1.04	1.03	1.02	0.96
Average cost of hauling a passenger unit one mile, including interest on capital expended on open line at the rate of 5 per cent. per annum „	1.63	2.73	2.26	2.24	1.87	1.76
34 Average sum received for carrying a unit one mile— Average for all classes... Pies.	2.66	2.68	1.78	1.79	2.06	2.06
Surplus profit after paying 5 per cent. interest „	+1.03	—0.05	—0.48	—0.45	+0.19	+0.30

APPENDIX B TO QUESTION No. 3 B.

Demi-official, dated the 9th May 1893.

From—Louis L. Moss, Esq., Agent and Manager, Madras railway,

To—F. R. Upcott, Esq., Ootacamund.

On the day you left Madras I called upon you, you will remember, to speak to you on the subject of our rates for the carriage of 3rd class passengers.

2. I read to you my official letter to the Board of the 6th October 1892, in which I suggested that the 3rd class fare should be raised, as an experiment, from $1\frac{1}{2}$ pies per mile to $1\frac{3}{4}$ pies per mile, between Podanur and Calicut, and I explained that I had selected this part of the line for the experiment as we were free from competition between the two points I have named, and as we have only the one fare ($1\frac{1}{2}$ pies) for passengers whether they travel by the mail or the mixed train.

3. I read to you also the Board's official reply dated the 25th November 1892, in which it was stated that the Board were "averse to any change unless very strong and convincing reasons can be adduced in support of it." I also gave you particulars of the arguments I had used in writing subsequently to my Chairman, and I further told you that the Chairman had then stated the Board would not further object to the experiment I had recommended if the Consulting Engineer and the Government of Madras held the same views as myself.

4. In the matter of rates, it has always been usual, when we have been within the maximum and minimum rates sanctioned under our contract, to solicit the Board's sanction, reporting to the official Committee any changes in the rates it has been determined to introduce; but, in the present instance, it seems to me that I cannot write my Board again until I have convinced you that my views with reference to the 3rd class fare are correct.

5. I believe that we are throwing away more than 4 lakhs of rupees yearly in maintaining the existing rate of $1\frac{1}{2}$ pies for 3rd class passengers, and I am of opinion that if a rate of $1\frac{3}{4}$ pies were introduced over the whole line we should lose but few, if any, of the total number of 3rd class passengers we now carry.

6. I do not however propose, at present, to change the rate over the whole line but to increase it only between Podanur and Calicut, and to prove on this section of the line if I am correct in my views.

7. The fares in force on the several Indian railways for 3rd class passengers are as follows :—

	Pies.
Madras railway	$1\frac{1}{2}$
Bombay, Baroda and Central India railway	$2\frac{1}{4}$ to $2\frac{1}{2}$
Great Indian Peninsula railway	$2\frac{1}{2}$
East Indian railway	$2\frac{1}{2}$
Oudh and Rohilkhand railway	$2\frac{1}{2}$
North Western railway	2 to $2\frac{1}{2}$
Eastern Bengal railway	$2\frac{1}{2}$
South Indian railway	2
Rajputana-Malwa railway	$2\frac{1}{2}$ to $2\frac{3}{4}$
Tirhoot railway	$1\frac{3}{4}$
Rohilkund-Kumaon railway	3-11
Southern Mahratta railway	$2\frac{1}{2}$
Burma state railway	3
Bengal and North-Western railway	2

and it will be noticed that the Madras is the only railway that carries passengers at the very low fare of $1\frac{1}{2}$ pies.

APPENDIX B TO QUESTION No. 3 B.—*contd.*

8. Our ordinary passenger traffic for last half-year seems to me to show a very poor result compared with the 3rd class passenger traffic in December 1885, the year previous to the introduction of the lower rate.

The figures are—

December 1892 (third class ordinary $1\frac{1}{2}$ pies).				Per cent.
		Rs.		
Working expenses	...	5,08,730		51
Net receipts	...	4,95,794		49
Gross receipts	...	10,04,524		100

December 1885 (third class mail and ordinary 2 pies).				Per cent.
		Rs.		
Working expenses.	...	4,54,436		39
Net receipts	...	7,10,823		61
Gross receipts	...	11,65,264		100

9. The $1\frac{1}{2}$ pies rate was introduced in July 1886, and it is interesting to note what the result of the reduction in the rate has been.

10. For simplicity I will deal with single half-years and confine myself to the June half-years.

We carried—

In June	Passengers.
1886	2,923,490
" 1887	3,543,684
" 1888	3,724,290
" 1889	4,193,943
" 1890	4,184,203

and we earned in money for carrying these passengers—

In June	Rs.
1886	11,59,989
" 1887	12,20,247
" 1888	12,48,343
" 1889	13,57,252
" 1890	13,69,221

It is supposed by some people that the whole of the increase shown during these years is due to the working of the very low rate of $1\frac{1}{2}$ pies, but the following figures, which Mr. Betts of the South Indian railway has been kind enough to send to me, will show that with a rate of 2 pies in force for 3rd class passengers and without any addition to the mileage of a railway the result has been quite as satisfactory.

11. The South Indian railway with an open mileage of 654 miles carried in the half-years ended—

June	Passengers.
1886	3,135,422
" 1887	3,386,975
" 1888	3,452,413
" 1889	3,794,539
" 1890	3,931,823

APPENDIX B TO QUESTION No. 3 B.—*contd.*

and earned in money—

	Rs.
June 1886	11,29,042
" 1887	12,53,173
" 1888	12,36,848
" 1889	13,69,504
" 1890	14,00,063

The figures for the two railways for the half-years ended June 1886 and June 1890 compare as follows, viz. :—

Number carried.			
1886	South Indian railway	3,135,422	Madras railway
1890	" " "	3,931,823	" "
Increase		896,401	1,255,713
Per cent.		28.59	42.88

Money earned.			
1886	South Indian railway	11,29,042	Madras railway
1890	" " "	14,00,063	" "
Increase		2,71,021	2,09,232
Per cent.		24.00	18.04

and if these figures are studied they will show conclusively in my opinion that the two pies rate charged by the South Indian railway has been the most successful. But within the five years I have named, the Madras railway worked 16 additional stations, and these stations must be credited with having contributed 503,992 passengers to the June 1890 half-year.

12. Then again the connection with the Southern Mahratta railway at Guntakal and Bangalore city, and the extension of that Company's system to Kistna in the north and Dharwar and Belgaum in the west, and the connection with the South Indian railway at Renigunta and Katpadi have added largely to the number of passengers carried over the Madras railway.

13. In 1891 the South Indian railway system covered 850 miles, and in 1892 the mileage worked over had risen to 1,113 miles, so that it is impossible to carry the comparisons to a later period than 1890.

14. The 3rd class rate on the Madras railway, as I have explained, was reduced from 2 pies per mile to $1\frac{1}{2}$ pies on the 1st July 1886, and it will be further interesting to compare the receipts, net profit and the percentage of net profit for carrying this class of passengers for the closing half-years from 1885 to December 1892 inclusive.

The figures are—

	Gross passenger receipt, 3rd class.	Net profit.	Percentage of gross passenger receipts.
	Rs.	Rs.	
1885	11,65,264	7,10,828	61.00
1886	11,84,455	6,17,853	52.16
1887	11,61,859	5,06,591	43.60
1888	13,34,239	7,02,269	52.63
1889	13,92,223	6,86,688	49.32
1890	14,48,927	*8,21,383	*56.69
1891	12,73,642	6,30,694	49.52
1892	14,11,626	7,04,222	49.89

* NOTE—The mail train fare for part of this half-year stood at 3 pies per mile, instead of 2 pies, as was previously the case. It was reduced to $2\frac{1}{2}$ pies from the 1st August 1891.

APPENDIX B TO QUESTION No. 3 B.—*concl'd.*

• Not printed.

15. The diagram* I am enclosing shows that the net profit for carrying 3rd class passengers has remained practically stationary, while the working expenses have risen from 4½ lakhs of rupees in 1886 to 7 lakhs in 1892.

16. If with these facts and figures before you, you can tell me that you view favourably the experiment I wish to make on the Western Coast, before I commit myself to recommending a change for the whole line, I shall be greatly obliged, as I shall then be in a position to address my Board again.

17. My object is to increase the Company's revenue, and any movement in this direction should commend itself to the Government as the interests of the Company and the Government are in a matter of this kind identical.

18. In other words, I want to work the passenger traffic of the Madras railway on commercial principles and to put aside all feelings of philanthropy in connection with the carriage of native 3rd class passengers.

19. The bulk of these people travel for pleasure either in connection with periodical feasts or to visit their friends and relatives, and only a small proportion, as far as I can learn, travel on account of trade. We gain but little indirectly, therefore, by hauling these people about at a rate which is after all a doubtful paying rate.

20. We do not, under our present system of accounts, add the expenses incurred in carrying 3rd class passengers by goods trains, but we know that on the Madras railway a very large percentage of the 3rd class passengers is now carried by goods trains; in fact, the change I made in this direction in the years 1887, 1888, 1889 and 1890 must be credited with a large proportion of the increased numbers we have carried, because by utilising goods trains we placed facilities at the door of the native villagers and enabled them to make short trips out and home again during the one day.

APPENDIX C TO QUESTION No. 3 B.

Note, dated the 14th July 1893, by Major W. V. Constable, R. E., North Western railway, on the subject of the reduction of third class fares.

The chief points brought out in Mr. Horace Bell's note, forming paper No. 3 in class B. of the subjects for discussion at the ensuing Railway Conference, are:—

- (1).—That there are crowds of poor people in India who would travel if the 3rd class fare were reduced, and that their numbers are double or treble the existing passenger traffic.
- (2).—That these people are comparatively as well off as the same class in England, and therefore should travel to the same extent.
- (3).—That a passenger traffic does not cost much to work, the basis of cost being taken as shown in the Government statistics.
- (4).—That the results of experiments in reductions that have been made, shew that the increase in numbers is large, and the net profits derived therefrom satisfactory, and that these results are the outcome of the reduction.

2. Probably many railway administrations will be able to disprove issues Nos. 3 and 4 in toto, and Nos. 1 and 2 in part, and I will endeavour to do so for the following reasons:—

3. When reading the note, I was aware that the Madras railway, for some time past, had been coming to the conclusion that they had not found that the reduction, which they made in 1886, of third class fares from 2 to 1½ pies had resulted in a reasonable amount of increased third class traffic or in additional net profit therefrom. For a long time also, I had been a believer, that the division of coaching and goods expenses on the basis of the gross ton-mileages of goods and passengers, as shown in the Director General of Railways' statistics for Indian railways, was unfair to goods and was very favourable to coaching traffic, and that these statistics were principally useful as a basis of comparison with the results of other railways, and were of very little value in arriving at actual cost of carriage. The statistics, so I held, are very far from representing the actual cost of carrying a passenger or goods unit or of running a passenger or goods train, and it is my belief that goods are paying for passengers both in India and in England, especially in the latter country.

In support of my first statement, we have the latest figures furnished by the Agent of the Madras railway to his Board of Directors, of which I have been furnished with a copy, which shew that the increase in the number of third class passengers, was probably the result of the general growth of traffic throughout the country traversed by the railway, and was not specially created by the lowering of the fare, and they seem to prove that the anticipated addition to the net receipts derived from the increase in numbers was illusory. If this is true, and I think it is proved, the reduction has simply resulted in a serious loss of revenue.

4. One of my chief reasons for objecting to immediate reductions, follows from my not being able to accept the very important assumption made in paragraph 8 of Mr. Horace Bell's note, in which he says, that the sole disadvantage of coaching to goods traffic, as far as expenses go, lies in the former's disproportion between the paying and the dead load. This view I think is quite erroneous, and I would rather reverse it and say, that the only advantage which coaching has over goods traffic, is that it loads and unloads itself; whilst on the other hand, it is, in nearly every respect, much more expensive to work than goods traffic. I cannot even allow the advantage of less empty running to

APPENDIX C TO QUESTION No. 3 B.—*contd.*

coaching traffic, as the statistics for 1891 shew that the capacity utilized by both the gauges in India was 38.44% for coaching *versus* 49.54% for goods traffic. In support of my views, I should say that, if a railway had a heavy goods and no coaching traffic, it could be worked at a very small cost. It might have the roughest of roads, ordinary signals and points, simple signalling and station arrangements and the cheapest of staff; in fact, all it would want, would be just enough conveniences and just such a standard of up-keep, to enable a slow goods train to get over the road safely. Now take this line and work a fast passenger traffic over it, and the expenditure required to do this will be largely increased. A high standard of maintenance of road, both of permanent way and of bridges, will be absolutely necessary, interlocked points and signals may have to be provided, as also considerable station accommodation and conveniences; very likely an absolute block system and intelligent signallers and a highly trained staff will have to be employed, and expensive carriages supplied with good lights and fitted with automatic brakes and inter-communication between carriages, will have to be provided; in fact, it is only now that to be of a different standard altogether, and all this will mean greater capital outlay and increased revenue expenditure.

Even, if the division of expenses were made on the basis of train-mileage or on that of the respective coaching and goods earnings, it would not, in my opinion, go far enough to make the figures represent the real cost of working each kind of traffic. I believe myself, as has been stated by more than one recent writer, that the high goods rates of English railways (some of them working under as favorable conditions as American railways with which they have been compared) are due, not only to the bad design of goods stock possessed by the English lines, which I admit is the most important factor, but also to the fact that the goods traffic pays in a large measure for the comparatively empty stream of unprofitable express passenger trains.

5. A study of the statistics of Indian railways will shew, that in every case, the cost of running a coaching train one mile is shewn as being considerably less than the cost of running a goods train one mile, and in some cases it amounts to less than 50% of the cost, and further, that the earnings of a goods train per mile are in nearly every instance greater than the earnings of a coaching train per mile. I am unable to accept the first as a fact and I honestly believe, if it were possible to accurately ascertain it, that the actual average cost of running a coaching train on any line would be found to be more than the cost of running a goods train, and I can see no reason, therefore, why a coaching train should not earn more than a goods train. In addition to interest on capital to coaching to arrive at a fair approximation of the expense of working passenger traffic over any railway.

It seems to me also to be of more importance, that goods should be transported cheaply than that passengers should, but as matters now stand, a railway is improved in every way, in nearly every case because of its passenger traffic, and by these improvements, upon the present basis of analysis, goods then Mr. Horace Bell's estimate of the cost of working coaching traffic is wrong, and such of his pleading on behalf of lower fares, as is based on this assumption, may be disregarded.

6. To go further and attempt to disprove his conclusions deduced from the actual results of a lowering of fares, we may examine the figures which he holds up as an example in his para. 8. The Madras railway now deny and disprove the success of the experiment, it being apparently a failure and a repetition of the experiment on the Eastern Bengal railway and of those on the Great Indian Peninsula, and Bombay, Baroda and Central India railways in 1861, and it may be quite possible for those conversant with the facts to shew that the result on the Tirhoot, and East Indian railways, were also due to a general steady increase in the passenger traffic of those railways, and were but little affected by the reduction in fares. It also might have turned out to be

the case, that, had these two railways kept to their old fares, their net incomes would have been greater than they have been.

To quote facts produced by the Madras railway, we see that the South Indian railway, which adhered to its 2 pie fare, increased its number of 3rd class passengers, during the period of reduction on the Madras railway, by 28.59 per cent. against 42.88 per cent. increase on the Madras railway, but that its net receipts from third class traffic increased by 24 per cent. against 18.04 per cent. only on the latter line. Again, it looks as if the table quoted in Mr. Horace Bell's paragraph 5 shews that the South Indian railway, with its 2 pie fare, paid better than the Tirhoot railway with a 1½ pie fare, as in spite of the lower charge on the latter railway, it only got an average of 16.17 passengers into a 3rd class carriage *versus* 22.29 for the South Indian railway; and, if the Madras railway could have got 2½ pies per passenger, and this might have been feasible, it would have paid it far better to have taken 21.93 passengers in each carriage as the East Indian railway did, than to have got 27.84 at 1½ pie.

But leaving the figures for 1888-89, and taking those for the 1st-half of 1891 (they are not given for the Tirhoot railway for the half-year ending December 1891), we find, that the Tirhoot railway had only a percentage of freight to capacity hauled of its lowest class passengers, of 55.41, whilst the South Indian railway had 61 per cent., the Rajputana, had 51.07 per cent. and the Southern Mahratta 51.07 per cent., the latter railway doing as well as this with its high 2½ pies fare, so that it certainly looks as if the lower fare did not fill the carriages to anywhere near the extent necessary to make the net receipts from this traffic equal to those obtained from the higher fare. In fact, I think, Mr. Bell's figures, if analysed, rather tell against his deductions and shew that the variations in the number of passengers carried per vehicle, are simply the result of natural causes and of natural expansions of traffic, and have been little affected by the fares charged. But even assuming that a reduction of fare from 3 to 2½ pies on some railways did attract additional passengers, and did not result in any disproportionate falling-off in net receipts, it does not follow that a further reduction from 2 to 1½ pies will pay on the East Indian railway or on any other line.

7. To continue the criticism, I would say with regard to issue No. 2, that the figures given in paragraph 4 of the note, which are taken by Mr. Warden as an important basis of argument in favor of a reduction, seem to be arbitrary and are open to question. Possibly, as good a ratio between an agricultural labourer's earnings in England and the ryot's wages in India, would be as 7 to 1, and their cost of living per diem when travelling as 9 to 1, and it is very questionable if proposals for reduction of fares based on such arguable premises justify costly and bold experiments being made. In fact, there is some doubt if the consideration of the agricultural labourer's earnings and savings has much bearing on the subject as it is uncertain if this class use the English railways much or ever will do so to any appreciable extent.

8. At the same time that I oppose immediate reductions, I admit, as every one else probably does, that there are many people in various districts in India, as elsewhere, who would travel if fares were lowered, and the question for railway administrations to thresh out, is what reduction, if any, should be made to secure this traffic and yet make third class reasonably remunerative? Unfortunately, none of the necessary data by which this can be determined with any approach to accuracy, is at present available, and as the growth of third class passenger traffic is certainly satisfactory in India with the present fares, it seems rash to make a reduction now.

When this reduction is made however, it will have to be considered whether it will not end in the third class passenger getting less seat and space-accommodation and less comfort than he gets now. We probably now give much better accommodation in our trains than the mass of the third class passengers get anywhere outside of a railway carriage, and we are moving fast

APPENDIX C TO QUESTION No. 3 B—concl'd.

in the matter of bettering third class travelling, by raising the speed of trains, by providing latrines and improved lighting in carriages and other conveniences, and by fitting trains with automatic brakes and other appliances, but all these extra conveniences and comforts will, unless economies are made in other directions, and by increasing the cost of passenger working, and a limit will be reached when the cost will, to a great extent, rule the fare.

This limit is being reached on English railways, and, as far as I can see, the present third class fares in England will not bear any reduction in the future, and are not likely to be lowered. I would rather say, that English railways will soon find, that their high goods rates which now either cover the losses or swell the very small profits resulting from the running of too many short and fast passenger trains (that every day are being made more luxurious and comfortable for the third class passenger), must be considerably reduced. The result may be, that the third class passenger will have to put up with less comfort, with fewer trains and with a lower rate of speed, and he certainly is not likely to get any reduction in fare.

Now to a small but constantly increasing extent, India is following English methods, and the railways out here are beginning to give similar extra conveniences to its third class passengers, and as this will certainly involve a higher standard of railway maintenance and working than is now in force, the extra cost of doing this, should diminish the present profits on Indian railways, and may leave no room for any considerable reduction of fares. All these highly probable contingencies should be considered before very low fares are introduced.

9. On the whole therefore, I am of opinion that it has not been proved, that a reduction below existing fares is justified now, but I do think it quite probable it will come in time, and that when it does, that the Indian railways will have to seriously consider how the existing and the additional passengers carried at reduced fares, will have to be dealt with in order to enable the railways to earn a reasonable profit. If I may be permitted to prophesy, I would say, that it will lead to an universal difference being made in the charges by fast and slow trains, and to a restriction in seat and cubic-air space per passenger by the latter trains, to one or more carriages being attached to nearly every convenient goods train to accommodate short-distance poorer passengers, and to the moving dimensions of broad-gauge stock being increased so as to accommodate at least two more passengers per transverse compartment. It will also probably lead to a diminution in the numbers of classes of carriages hauled on trains, and will either curtail the number of 1st and 2nd class carriages on them, or fix the fares for these classes at a more remunerative figure.

10. In conclusion, I would point out how necessary it is, before any bold experiment in reducing fares is entered upon, to obtain more reliable data, first, as to the wages and savings, the habits and the motives of the journeys of the poorest classes which it is desirable to secure to the railway; and secondly, to determine as near as possible, what the actual cost of carrying a unit of goods and coaching traffic is, not just now perhaps, but a little later on, when wider carriages have been built, and the tare to freight of both coaching and goods stock has been improved, and when it has been seen how the conveniences now in train to be provided to the Indian travelling public have affected the cost of working. I can see no necessity for hurry in the matter. Indian railways are only in their infancy, and the existing mileage will probably be trebled before the country is adequately supplied with railway communication.

I am not sure either, now that stability has been given to exchange, and when capital is again likely to flow into the country for railway enterprise, that it is advisable for Government to hold out any sort of promise of bold reductions in fares in the future.

APPENDIX D TO QUESTION No. 3 B.

Note by Lieutenant-Colonel G. F. O. Boughey, R. E., Manager, North Western railway, dated the 3rd July 1893.

This note* from the Agent and Manager, Madras railway, seems to me to thoroughly expose the fallacy of increased profits due to lower passenger fares. I believe that a similar examination of the results on the Tirhoot railway would lead to the same conclusion, assuming the following figures per train mile:—

Earnings	...	...	...	...	...	2½ pie.
Cost	...	...	...	...	...	1½ "
Profit	...	...	...	...	...	1½ "

If we reduce the earnings by ½ pie we get—

Earnings	...	...	...	...	...	2
Cost	...	...	...	...	...	1½
Profit	...	...	...	...	...	¾

The profit is thus reduced in the proportion of from 5 to 3, and even if we assume a slightly lower cost of working a heavier traffic, we must increase our traffic by 50 per cent. before we are in the same position as we were in before. There is no prospect of our making such an increase.

2. With all our experience, we know little of the classes who travel and the cause of their journeys either in England or in India. In neither country does the rural population travel largely. It is the town population who chiefly travel, partly on business, and partly to escape from the towns when they can afford it. In India we have large pilgrimages or religious fairs to and from which country people travel in large numbers. Apart from this, the majority of Indian passengers are traders of some kind, or they are going to and from the head-quarters of their Revenue district on matters of law or business connected with the tenure of their land.

3. Seeing the comparatively small amount of the urban or trading population, I think the railways in India have developed a large passenger traffic, as the statistics for 1891 show a total of 121 million passengers, the earnings from whom amounted to nearly 69 million rupees. This large traffic is due to the very low rates at which passengers are carried. The traffic is far from being stagnant, and I feel sure that a reduction of rates on any large scale is not desirable and would not be profitable.

4. I desire to add a word of caution regarding the supposed profits from passenger traffic. The cost shown in our statistics depends largely on our division of expenses between coaching and goods. The correctness of this division was challenged a good many years ago and opinions were called for from different railways, and I then wrote a note upon it. No action appears to have been taken in the matter. My opinion is and has been that the old division by train mileage threw an undue proportion of the cost on coaching traffic, and that the present division by ton mileage throws an undue proportion of the cost on goods traffic, and I suggested at the time that a mean between the two should be taken as the fairest approximation to the truth. I therefore think that the profit on passenger traffic shown in our statistics is larger than the real profit, and that the reduction advocated by some people would leave us with little or no profit at all—certainly without a profit commensurate with our expenditure.

APPENDIX A TO QUESTION No. 5 B.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION NO. 5 B.

D. O. dated the 1st June 1893.

From—The Private Secretary to the Viceroy,

To—The Secretary to the Government of India, Public Works Department.

The newspapers very frequently contain complaints of the nature referred to in the enclosed letter. Has any attempt been made to remedy them?

Letter, dated Mahableshwar, the 25th May 1893.

From—MR. G. N. KANE, a third class passenger,

To—His Excellency the Viceroy of India, Simla.

May it please Your Excellency.

The following is submitted for Your Excellency's kind consideration.

Great hardship is endured by the third class passengers on the Great Indian Peninsula railway by the absence of all accommodation to answer call of nature, &c., &c. The convenience that is offered to European third class passengers ought in justice to be offered to all third class passengers whether Native or European. A separate compartment may be reserved for Europeans or for any class of people the Company think fit to reserve, but it cannot be denied that same amount of convenience ought to be given to all third class passengers who pay the same fare. The seats are very narrow. They ought to be wider than they are at present. The bilateral compartments which are provided for European third class passengers may be brought into general use and given to all third class passengers.

Third class passengers taking their families with them find it extremely hard by the absence of the accommodation above alluded to, and I submit that it is extremely unfair to reduce them to the necessity of suffering such inconveniences when they could be easily removed if only Your Excellency pays attention to the wants of suffering subjects of Her Majesty the Queen placed by God under Your Excellency's charge. For this act of kindness the undersigned, as in duty bound, shall ever pray.

Letter, dated Simla, the 20th June 1893.

From—The Private Secretary to the Viceroy,

To—MR. G. N. KANE.

In reply to your letter of the 25th May, I am to inform you that the subject of providing latrine accommodation in third class carriages is one that has occupied the attention of the Public Works Department for many years. It is one by no means free from difficulty, inasmuch as it is the opinion of capable judges, both European and Native, that latrines in third class carriages, so far from being a source of comfort to the generality of passengers would be a positive nuisance to travellers owing to the negligent habits of the majority of passengers of that class. The matter is, however, one which is not being overlooked.

APPENDIX A TO QUESTION No. 6 B.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 6 B.

No. 5153-33 M., dated the 20th July 1893.

From—The Manager, Burma state railway,

To—The Secretary, Railway Conference.

Copy of the following forwarded to the Secretary, Railway Conference, in continuation of this office letter No. 6944—35 T. R., dated the 7th September 1892.

No. 4040 T.-A., 112, dated the 17th July 1893.

From—The Examiner of Accounts, Burma state railway,

To—The Manager, Burma state railway.]

IN continuation of my No. 1857—112-T.-A., dated 9th August 1892, on the subject of the advisability of allowances being made to station staff for errors due to shortage, &c., I would ask you to represent also that it would be well that acknowledged excesses in booking, if paid in by station staff, should, though not to be refunded to them, be held to their credit for the liquidation for shortages of small amounts. This is usual, I believe, in many English banks.

APPENDIX A TO QUESTION No. 8 B.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 8 B.

No. 093, dated 1st August 1893.

From—The Consulting Engineer to the Government of India for railways,
Lucknow,

To—The Secretary to the Railway Conference.

With reference to the papers circulated with your No. 69, dated 20th July 1893, respecting the proposed introduction of a subsidiary rule in regard to trains approaching stations at which only one light is visible, I have the honour to inform you that I personally do not agree with the recommendations made by the Government Inspector, who enquired into the accident which occurred at Ratika-Nagla on 25th March 1892.

2. I agree with the views expressed by the Agent, East Indian railway, in his No. 8046,* dated 8th September 1892, and also with the views expressed by the Locomotive Superintendent, Madras railway, in paragraph 1 of his letter No. A-10815-529,† dated 22nd August 1892.

* *Vide* page 6 of question.

† *Vide* page 3 of question.

3. I have considered it necessary to explain my views, as the accident in question occurred in this circle of inspection, and the report which was prepared by my predecessor was merely forwarded by me on the day upon which I took over charge.

APPENDIX A TO QUESTION No. 10 B.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION NO. 10 B.

No. 1792 M., dated the 2nd August 1893.

From—The Manager, Eastern Bengal state railway,

To—The Secretary, Railway Conference.

Punishment to be awarded to railway servants who are absent without leave.

WITH reference to this office letter No. 264 M., dated 4th February 1893, I have the honor to send herewith, at the desire of the Acting Agent and Chief Engineer, Bengal Central railway, a copy of his letter No. 619, dated 27th July 1893. Letter noted in the margin, making certain observations on the memorandum forwarded to you with my above quoted letter, relative to the punishment to be awarded to railway servants who are absent without leave.

No. 619, dated the 27th July 1893.

From—The Acting Agent and Chief Engineer, Bengal Central railway,

To—The Manager, Eastern Bengal state railway.

From the printed papers furnished to me by the Secretary of the Railway Conference, I find (*vide* paper No. 10) that my letter No. 63 of the 23th January last on the subject of the "Punishment to be awarded to railway servants who are absent without leave" has been forwarded to the Secretary of the Railway Conference with a memorandum, dated the 4th February 1893, by the then Manager of the Eastern Bengal state railway (Mr. Finney), but no copy of that memorandum was furnished to me at the time.

The second paragraph of that memorandum expresses opinions so entirely opposed to the views expressed in my letter, which it accompanies, that the subject which I desired to lay before the Conference for free discussion is thereby placed under the disadvantage of being presented to the Conference with adverse criticism at the outset.

Had the memorandum been communicated to me at the time it was written, I should have been able to reply to many of the assumptions contained in it and the whole correspondence could then have appeared in the Conference papers simultaneously.

- i. The memorandum states that the definition of what constitutes danger according to the new Railway Act is "as clear as it could be made." As a matter-of-fact, since it has become known to the men employed on this railway that, under the new Railway Act, they can abscond without fear of being prosecuted, there have been several cases of absconding. Of these, some have been of gatemen, who to save themselves from prosecution have called to some khallassee, or other irresponsible individual, and asked him to watch their gate for a little while whilst they went to purchase necessities and have never returned. Now, it is required of a gateman by the railway rules, that he shall understand the rules of his work; he is responsible for the safety of the public crossing to and fro over the line at his gate and also that the line shall not be obstructed by cattle or other impediments to the safe passage of trains; yet in every instance the Government Railway Police have expressed themselves as unable to institute a prosecution under the present Act. It will thus be seen that the trick of placing an utterly ignorant boy to watch a gate is sufficient to protect a gateman from prosecution, though he undoubtedly, 'endangers the safety of persons' in doing so. Further, the

APPENDIX A TO QUESTION No. 10 B.—*concl'd.*

definition of what constitutes danger is so very vague, that a case of the kind instanced above never even has the chance of getting to a Magistrate for decision, the Government Railway Police will not even take it up. My contention is that "to endanger the safety of persons" it is not necessary to have actually caused an accident, but that it is sufficient to do that from which an accident might easily result.

- ii. The belief which is expressed in the memorandum to the effect that Government would never "agree to impose a heavier penalty than loss of pay or fine for ordinary breach of engagement, which merely causes inconvenience to the employer and in no way affects the safety of the travelling public or other railway servants," appears to me to prejudge the case, instead of allowing it the full benefit of free discussion. As a matter-of-fact, it is only by the recent alteration of the old Railway Act that a railway servant has ceased to be liable to prosecution and punishment for absconding. It is, moreover, a matter requiring very careful consideration whether the Act, as it is now worded, does not admit of a large number of men seriously interfering with military requirements, such as the rapid concentration of troops at any particular place, by simply ceasing to work and absenting themselves in a body with impunity. The loss of pay prescribed by the Act never results in the loss of more than a few days' wages and never of a whole month, the payment of wages never being delayed as long as a month. It is therefore a proviso that is altogether insignificant and useless as a deterrent.

From the letter of the Secretary to the Government of India, No. 200 R. E., dated 14th March 1885, published with mine in the Conference papers (No. 10), it will be seen that the Governor General in Council recognizes that danger exists in the removal of even a railway cooly without due notice, on an open line; how much more danger must there be then in cases where men abscond and their absence remains undiscovered for a considerable time.

I should be glad of your sending a copy of this letter to the Secretary to the Railway Conference for publication, in order that the remarks contained in the memorandum of the 4th February 1893 (by Mr. Finney, the then Manager, Eastern Bengal state railway) should not be thought to, in any way, express my views on the subject brought up for discussion.

APPENDIX D TO QUESTION No. 11 B.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 11 B.

No. 302 T., dated the 14th August 1893.

From—The Director General of Railways,

To—The Secretary, Railway Conference.

The undermentioned papers are forwarded to the Secretary, Railway Conference, for favour of necessary action.

Documents referred to.

No. 778 D. G. R., dated the 9th August 1893, and its enclosure, from the Manager, North Western railway.

No. 778 D. G. R., dated the 9th August 1893.

From—The Manager, North Western railway,

To—The Director General of Railways.

I have the honour to forward, for information, copy of a note by Major W. V. Constable, R. E., Deputy Manager, on paper 11 B. to be placed before the Railway Conference of 1893.

NOTE, DATED THE 1ST AUGUST 1893, BY MAJOR W. V. CONSTABLE, R.E., OFFICIATING DEPUTY MANAGER, NORTH WESTERN RAILWAY, ON PAPER NO. XI, CLASS B. OF THE ENSUING RAILWAY CONFERENCE.

1. I think the Manager, Eastern Bengal state railway, is mistaken in depreciating the utility and the accuracy of our statistics.

2. So far as I have been able to judge they appear to be the best published, and they are most useful both for comparisons with other railways and for use on home lines. I admit they might be better and they might, with advantage, be compiled for the financial year, instead of for the two calendar half-years, as they would then compare directly with the annual working estimates and budgets, and they would, in nearly every case, give the results for portions of good and bad half-years, and so would be useful for comparisons by any half-years, which is not always the case now. The Revenue Accounts should be for the same periods and the result would be a considerable saving in cost.

The Statistics or Analysis should, of course, be read along with the Revenue Accounts, and any person directly interested in them would naturally take into account the peculiar circumstances of each railway, such as the extent and nature of the grades, the volume and direction of the principal traffic, the amount of empty running, and, most important of all, the cost of fuel.

One further great improvement would be to introduce items shewing results based on the assumption that fuel costs the same on all lines, and another, more important still, would be to apportion coaching and goods expenses in a more accurate manner than on the existing basis of gross ton mileage of each kind of traffic. But, on the whole, there does not seem to be much fault to find with the statistics.

3. Mr. Grierson's evidence quoted seems to me to be weak and vague, and Sir George Findlay's book on railways is the poorest I have ever read; it being

APPENDIX D TO QUESTION No. 11 B.—*contd.*

chiefly devoted to trying to show that statistics rejected, what a perfect machine, if not the most perfect railway in the world, the London and North-Western railway is, and this in spite of the fact that statistics, never yet disproved to my knowledge, never mind what their value was considered to be by English authorities, shewed that the London and North-Western railway when compared with the New York and Central railway, over which it apparently had the advantages of cheap coal and labor, spent twice as much in transporting a ton of goods, and charged the public some three times as much or more as the latter railway did. And yet the Manager, Eastern Bengal state railway, in his paragraph 6, says, if we had done without statistics, as the English railways have done, we should have had lower rates and a lower cost of working, and that the Indian railways' statistics have probably retarded the development of traffic at any rate. I cannot follow this argument or deduction, and I cannot see how statistics interfere in any way with a Manager securing the maximum traffic at the best rates obtainable, or in his getting as much as he can subject to competition; on the contrary, most railway men would probably own that the intelligent study of past statistics on any line have helped them in arriving at these results.

The fact is, and it is becoming better known every day, that railway Managers in England depreciate the value of such figures, and base their reasons for not giving statistics on the specious but untenable plea, that there is some thing so special, singular and peculiar about English working, that statistics are valueless for the purpose of comparing them with the railways of other countries, the real reason for their refusal however being, that they know if statistics were given, they would shew that the English railways are worked more uneconomically than any others in the world: consequently they see no reason for the British public being enlightened sooner than need be.

4. In defence of the utility of statistics, let me follow the writer's example and refer to Jeans' "Railway Problems," pages 494 and 495, &c., and I must say, I prefer his estimate of their value to that held by the Manager, Eastern Bengal state railway, and think that General Strachey's and Sir A. M. Rendel's views are sounder than those obtaining on that railway. If we want anything, it is a few fresh statistics, although, no doubt, a small number of those existing might be modified or abolished, but to condemn the value of the chief details of the statistics seems somewhat egotistical. To some extent, the note might be read to imply that every railway Manager considers himself to be an unerring authority on all matters concerning his own line, and has nothing to learn from the statistics of his own line or of other railways in spite of these figures being compiled on exactly similar methods, or it seems to suggest as an alternative, that a Manager can always carry a library of useful information in his head and make use of it. I have not met a man possessing either of these qualifications, and do not think he can exist.

5. In variance with the views expressed in paragraph 7 of the writer's note, I hold that statistics are of the greatest assistance to any railway Manager who is blessed with common sense, and who interprets them with discretion and caution and who knows something of the leading special features of other railways, as nearly every man does, and I believe, in spite of the expressed opinion to the contrary, that much of the successful working of Indian railways has undoubtedly been due to the existence of such good statistics as we have possessed, and to the fact that they have been intelligently studied and their meaning understood and acted on. At any rate, during the last 13 years that I have been connected with management or with administrative work of a similar nature, I have never yet met a Manager who did not daily find the statistics extremely useful, and who did not constantly make use of them.

6. Whilst the writer of the note seems to pin his faith to Mr. Grierson's views, which are, that nearly all railway statistics are valueless, and do not at all represent actuals, I much prefer Jeans' work entitled "Railway Problems," and make that book my railway bible; and I believe, as he does, and as he

APPENDIX D TO QUESTION No. 11 B.—*contd.*

expresses it on page 482 of his book, that the great secret of economical working, viz., the securing of the greatest live or net load, relatively to the non-paying or tare load, is in a great measure brought into prominence in the Indian and American railway statistics, resulting in good working where this important factor has been brought to notice, and in uneconomical working, as in England, where the information has not been forthcoming. This shows, I think, that it is important to know the load and tare of a vehicle, the paying and the dead load of a train, &c., &c., all of which information the writer of the note considers is of very little or no value.

7. Again, Mr. W. R. S. Jones, late Carriage and Wagon Superintendent, Rajputana-Malwa railway, in his recent note on the subject of light vehicles and the financial results to be obtained by running them, makes use of most of the statistics which are specially selected by the writer as being of no value, the outcome being a paper, which, even if it were of no other use, does, by the virtue of its mere suggestiveness, make railway men think of the advantages and disadvantages of design of rolling-stock; and this paper compiled by a practical Carriage and Wagon builder receives its chief strength from the deductions and reasoning derived from a study of our railway statistics. And yet in the face of this, the Eastern Bengal railway says, that the design of rolling-stock is not brought to notice by average statistics. Experience, however, seems to show that it is the contemplated advantages, based on the study and manipulation of such statistics, which have had a large share in improving the design of rolling-stock of all descriptions, and to this fact we owe much of the success achieved by Indian railways.

8. The writer asks for instances in which any Manager has found that the statistics have been of practical use. The answer is, that every Manager constantly finds them of practical use, and in support of this I ask, why, if they are of no practical use, has the Manager of the North Western railway lately asked me to extract certain of these statistics for the half-year ended December 1892, and those of previous half-years, for the purpose of obtaining explanations of the expenditure of one department, why, he himself has made use of them in calling for explanation from another department, and why, I was asked to make a note, based on these statistics, to see if the North Western railway had a sufficiency of rolling-stock.

In fact every Manager I know of uses the statistics every day, not that he believes that they all represent actual facts, but because the mass of them go nearer facts than any other obtainable data do, and because they are fairly reliable for comparison with work done in previous periods on the home line, and in many cases, allowing for the peculiar circumstances of each line most of which are now well known to railway managers, are relatively of value for making comparisons with foreign lines.

To attempt to answer one by one every question raised by the writer would not be difficult, but would take up too much time; but perhaps this may be considered unnecessary, when we note that he seriously asks, if it is of any use knowing the average number of passengers in a carriage or train, or of tons of goods in a wagon or train, for the reason that they do not represent actuals, and merely shew that 50% too much passenger and more than this proportion of goods accommodation is given than is made use of? Similarly, no credit is given for knowing the average mileage of engines or of vehicles, and I suppose none would be allowed for the information as regards the consumption of fuel per train or per 1,000 gross ton miles, as the writer says, that the information given in the Revenue Account and in Tables I to III of the Analysis, somewhat amplified, would give all information required.

9. In concluding the note, the author expresses the opinion that to be of any use the nature of the special treatment to which the statistics should be treated should be indicated; and he suggests that certain remarks may be printed on each copy to warn the expert in embryo and the unsuspecting layman. All I would say to this is, it would do no harm but that it seems scarcely necessary, for when I was first put to management work, I do not remember

APPENDIX D TO QUESTION No. 11 B.—*concl'd.*

experiencing any particular difficulty in drawing conclusions exactly on the basis of the opinion of the Simla Statistical Committee of 1880 as quoted by him, and I have constantly been instructed by all those under whom I have served to make comparisons of statistics with the home and foreign lines, with the view of obtaining explanations from the responsible departments and the result, as far as I know, has been satisfactory, and has demonstrated the use of the statistics. I thought every one who had gone through the mill of management work had similar experiences.

10. I think the mistake the writer of the note has fallen into, is in believing, as stated in his paragraph 6, that railway Managers are liable to accept the statistics as an accurate method by which they can ascertain the cost of every item of their work, and as an easy and accurate method by which the general public and controlling authorities can compare the working of one railway with that of another. Now I think this idea is a mare's nest, and in all my experience either in Management or in the Consulting Engineer's department, I have not come across an Agent or a Manager and with very few heads of departments who looked upon the statistics in this narrow light, nor, do I believe, do the controlling authorities or the public look upon them at all in the manner suggested in the note.

11. By all means, let us have the statistics revised and made more accurate and closer to actuals, and let all superfluous information be deleted; and if this is the object of the note, it will have done good service in drawing attention to the necessity of revision, but the writer goes beyond this and condemns, most unreasonably I think, some of the most important statistics of working, which from half-year to half-year prove of the greatest use to Managers and heads of departments and which assist them to curtail expenditure and make changes with a view to improve the economical working of the line and to beat previous records. This information is also constantly found to be of good service to the controlling authorities, in which I include the Government of India.

APPENDIX A TO QUESTION No. 18 B.

CORRESPONDENCE RECEIVED IN CONNECTION WITH QUESTION No. 18 B.

No. 10185-T., dated the 10th August 1893.

From—The Acting Agent, Bombay, Baroda and Central India (including Rajputana-Malwa) railway,

To—The Secretary, Railway Conference.

With reference to question No. 18-B., for the Railway Conference of 1893, I have the honor to forward herewith a copy of letter No. 4519, dated 5th August 1893, from the Engineer-in-Chief, Rajputana-Malwa railway, on the subject of the proposed establishment of a Committee of Engineers.

2. The Chief Engineer, Bombay, Baroda and Central India railway, also considers that the proposed Committee, if established, would be productive of much good and be the means of gathering together and compiling the results of a quantity of valuable experience.

I concur in this opinion and should be glad to see the proposed Committee established.

No. 4519, dated 5th August 1893.

From—The Engineer-in-Chief, Rajputana-Malwa railway,

To—The Agent, Bombay, Baroda and Central India railway.

Establishment of a Committee of Engineers.

In reply to your No. 9802-T., of 2nd August 1893, asking for remarks on a proposal made by the Chief Engineer, East Indian railway, for the establishment of a "Committee of Engineers," I have the honor to reply as follows:—

When the Technical section of the office of the Director General of Railways has collected from railway engineers in India, views and opinions on certain subjects, by the aid of correspondence, I think it would be a good arrangement to place the papers before a selected committee of Railway Engineers (of whom the Director General of Railways should be President) to make a final report with recommendations. This report should go to the Consulting Engineer to the Government of India for Railways who would pass it on to the Government of India with any remarks he might wish to make.

No. 108.

FROM

THE SECRETARY,

RAILWAY CONFERENCE,

TO

THE AGENTS, BOMBAY, BARODA AND CENTRAL INDIA, GREAT INDIAN PENINSULA, EAST INDIAN, SOUTH INDIAN, SOUTHERN MAHRATTA, AND INDIAN MIDLAND RAILWAYS.

THE AGENTS AND CHIEF ENGINEERS, BENGAL AND NORTH-WESTERN, ROHILKUND AND KUMAON, AND BENGAL-NAGPUR RAILWAYS.

THE AGENTS AND MANAGERS, MADRAS, AND HIS HIGHNESS THE NIZAM'S GUARANTEED STATE RAILWAYS.

THE MANAGERS, NORTH WESTERN, EASTERN BENGAL STATE, OUDH AND ROHILKHAND, BURMA STATE, AND JODHPORE-BICKANEER RAILWAYS.

THE MANAGER AND ENGINEER-IN-CHIEF, BHAVNAGAR-GONDAL-JUNAGARH-PORBANDAR RAILWAY.

THE AGENTS AND GENERAL MANAGERS, DARJEELING-HIMALAYAN RAILWAY.

THE SECRETARY, CALCUTTA PORT COMMISSIONERS' RAILWAY.

Simla, the 18th August 1893.

SIR,

I am directed to forward for your information the undermentioned papers relating to certain Conference questions which have been previously circulated, and to request that the papers now forwarded may be placed with the questions to which they relate.

I have the honour to be,

SIR,

Your most obedient Servant,

H. P. BURT,

Secretary.

Documents accompanying.

(As noted overleaf.)

Three copies of each Appendix

No. 109, dated the 18th August 1893.

Copy, together with copy of enclosures, forwarded, for information, to the Secretary to the Government of India, Public Works Department; the Joint Secretary to the Government of Madras, Public Works Department (Railway Branch); the Secretary to the Government of Bombay, Public Works Department (Railway Branch); the Secretary to the Government of Bengal, Public Works Department; the Secretaries to the Chief Commissioners of Burma and Assam, Public Works Department; the Secretary to the Resident at Hyderabad, Public Works Department; the Secretary to the Agent to the Governor General for Rajputana, Public Works Department; the Consulting Engineers for Railways, Bombay and Madras; and the Consulting Engineers to the Government of India for Railways, Calcutta, Lucknow, Central Division, and Assam; the Agent, West of India Portuguese railway; the Agents and Chief Engineers, Assam-Bengal, and Bengal Central railways; the Managers, Cherra-Companyganj and Jorhat railways; the Agent and General Manager, Dibru-Sadiya railway; the Manager and Executive Engineer, Morvi railway; the Managing Agents, Deoghur, and Thaton-Duyanraik railways; the Secretary and Agent, Nilgiri railway; the Engineers-in-Chief, Mushkaf-Bolan, Mari-Attock, East Coast, Bhopal-Ujjain, and Bina-Guna railways.

Documents accompanying.

(as noted overleaf.)

Five copies of each Appendix.

By order,

H. P. Burt

Secretary.

G. C. Press, Simla.—No. 902 P. W. D.—19-8-93.—200.

The Joint Secretary to the Government of Madras,

P. W. C. Ry. Branch, Madras.

B.N. 1183 to 87 P. 7-9-93

List of papers relating to Conference Questions which have been previously circulated.

Appendices to Series A questions.	Appendices to Series B questions.
Appendix A to Question No. 13 A. „ A to „ No. 17 A. „ A to „ No. 19 A. „ A to „ No. 21 A. „ A to „ No. 23 A. „ A to „ No. 27 A.	Appendices A, B, C and D to Question No. 3 B. Appendix A to Question No. 5 B. „ A to „ No. 6 B. „ A to „ No. 8 B. „ A to „ No. 10 B. „ D to „ No. 11 B. „ A to „ No. 18 B.

P. V. CURTIS 7412

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No. 1187 R 27th Sept 93

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