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MADRAS RECORD OFFICE.

Government of Madras.

P.W. DEPARTMENT.

G.O. No.	<i>2686-784</i>	Press Mis.
Dated	<i>5.10.</i>	<i>1876.</i>

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,
5th October 1876. No. 2,686.*

No. 83. Read the following letter from Major C. J. SMITH, R.E., Officiating Consulting Engineer for Railways, to Major-General G. W. WALKER, R.E., Secretary to Government, Public Works Department, dated Madras, 18th August 1876, No. 416:—

I HAVE the honor to submit the Administration Report of this department for the official year 1875-76.

2. It has been usual to send a copy to the Chief Secretary to Government; but, considering the labor which would be entailed in copying the present report which is drawn up in a more comprehensive form than formerly, I trust that this will be dispensed with until printed copies are available.

3. I shall be glad if the proof can be sent to me for final revision before copies are struck off, in order that the figures entered in the various tables may be verified.

No. 84. ORDER THEREON, 5th October 1876, No. 2,686.

RAILWAY, No. 9.

ORDERED to be printed and forwarded
to the Government of India.

(Here enter No. 2,687, dated 5th October 1876.)

(True Extract.)

Colonel,
Offg. Under Secy. to Govt., P.W.D.

To the Consulting Engineer for Railways.

Exd. E. C. Shunker.
Spare Copies

PUBLIC WORKS DEPARTMENT,
FORT ST. GEORGE, 5th October 1876.

No. 85.

No. 2,687.

FROM

MAJOR-GENERAL G. W. WALKER, R.E.,
Secretary to the Government of Madras,
Public Works Department,

TO

THE SECRETARY TO THE GOVERNMENT OF INDIA,
Public Works Department.

RAILWAY, No. 10.

SIR,—I am directed to forward here-
with copies of the Administration Report
of Guaranteed Railways of the Madras
Presidency for the year 1875-76.

I have the honor to be,

Sir,

Your most obedient servant,

Colonel,
Offg. Under Secy. to Govt., P.W.D.,
for Secretary to Government.

Exd. E. C. Shunker.
Spare Copies

P.W.D.

21/10/76

No. 100

3/

ADMINISTRATION REPORT

OF THE

RAILWAY DEPARTMENT

MADRAS PRESIDENCY

1875-76

Administration Report
of the
Railways in the Madras Presidency
for the year 1875-76.

Madras Railway.

1. Open mileage. The open mileage remains the same as at the end of last year, viz. $85\frac{1}{2}$ miles of single, and $3\frac{1}{2}$ miles of double line, the whole being maintained from Revenue funds. An estimate has been sanctioned for extending the double line from Perambore to Ambatne, a distance of $6\frac{1}{2}$ miles, in order to afford greater facility in working the
laterite

laterite traffic for the Madras Harbour. The work is now in progress, but some delay has occurred owing to the want of permanent way material, which has to be obtained chiefly from sidings and lay-lies where unserviceable rails can be substituted. The cost is being charged to Revenue, as the work is only required to meet this special traffic.

Capital Expenditure—The total 2.
Capital expended up to 31st March 1876, was Rs 10,63,68,434, /£9,750,440/ being at the rate of Rs 1,23,972 /£11,364/ per mile. During the official

official year under review the amount expended under this head was Rs 3,45,939, the principal items being the following:—

Engineering

Protection works to Palay, Poiray, Goriattum and Naggeri bridges	61,983
Huggri bridge	43,235
Renewals of sleepers	37,927
Renewals of telegraph posts	54,598
Bridges near Vanimbady and Mailputty	19,028
Extensions of station buildings and sidings	17,837
New quarters for staff	14,298
Water supply at Salt Cotour and Central Station	11,381

Locomotive

4 Double Saloon 1 st class Carriages	22,692
Converting 100 low-sided wagons into high sided	13,500
Strengthening wagon springs	16,342
Tools and plant	72,155

The value of stores on hand including those

those in transit / on 31st March 1876,
was Rs 33,25,436, showing a decrease
of Rs 3,02,305 during the year, which
may so far be considered satisfactory.

Dividend &c — The net profits 3.

of the official year were Rs 19,04,700
giving a dividend at the rate of
1.79 per cent, on the total

capital expenditure. The guar-
anteed interest from the commence-
ment of the Company up to
31st December 1875, amounted to

£ 7,137,517; and the net profits
for the same period came to a total
of £ 3,114,410; leaving a balance of
£ 4,022,807 to be met from the —

Revenues

4
Revenues of the country in addition
to the expenditure on land and control.
The profits have thus averaged 2.1
per cent per annum, including the
time occupied in construction.

4.
The policy of the Madras
Railway in regard to Capital ex-
penditure has undergone considerable
change during the last few years,
owing to the new Contract deferring
the right of purchase by the State
until 1st April, 1907. Formerly the
Directors considered it advantageous
to create new Capital bearing guar-
anteed interest; but now that a
longer certain tenure has been granted

to

to the company, they appear desirous
to put the line in thorough order
of at the cost of Revenue, and after
this has been effected, to trust to
an improvement of traffic, and
of reduced working charges, to secure
them a surplus over and above the
guaranteed interest. This falls
in, however, with the views of Govern-
ment, who have always held that
it is better to defray expenditure out
of Revenue at once rather than to
pay a high rate of interest for a
long term of years. The greater the
effort made to exceed the guarantee,
and

and the sooner this expectation is
realised, the better for all interests
concerned.

5. Restoration of damaged bridges.

The temporary restoration of the bridges
over the Cheyair, Paupugnee, and
Chittravatty rivers was successfully
carried out, and traffic over them
resumed on 26th May, 1875. At the
two last named bridges, no unforeseen
obstacles interfered with the progress
of the works; but at the Cheyair
it was found impossible to get
down either screw piles, or wells, for
pier No 37, and this pier was rebuilt
for a single way on the debris of the
old

old foundations, which extended to a depth of 15 feet below bed level.

Though only temporarily restored.

These bridges may be considered in rather a better condition to resist floods than when they were

built, the foundations being carried to greater depths.

Pennair bridge — although the 6.
damage to this bridge at first appeared to be slight, it has been found more difficult to deal with than any of the others, from the fact of the traffic not having been diverted. The old foundations presented great obstacles to the rebuilding of the piers, and

and, considering the generally unsatisfactory nature of the foundations, and that the damage was not, as at first supposed, confined to the two piers which were totally destroyed, it was thought desirable to defer all permanent work, and to make the best temporary arrangements possible. At the centres of the openings there have been constructed piers of screw piles and cylinders, which carry cross girders to support the main girders. The girders are thus supported at points other than those for which they were constructed, and in one pair which had suffered from the abnormal strain thus brought upon them it has been found

found necessary to remove the foundations of the old masonry, and to fix the screw pile pier in its proper position underneath the centre. A great deal of time and labour were expended in this work, and altogether the condition of the bridge has caused considerable anxiety. The temporary piers have been carried to greater depths, and with the above arrangements completed, the bridge may probably be considered in as good a position to resist heavy floods as when it was first constructed.

A complete set of borings

borings in the bed of the river has been made, and the question of the best way of dealing with this bridge is now under consideration. It will probably be found desirable to entirely reconstruct it, as well as those over the Paupugnee and Chittavatty. The total amount expended in the year 1874, on the restoration of these three works and the Cheyair, was Rs 2,73,811.

7. Bridge at 124 miles South-west line—The bridge of four 30 feet girders openings over the Vaniembady river, to replace one of five 15 feet openings destroyed on 6th May 1874, was

was opened for traffic on 20th June
1875. In the new structure the
abutments and piers are all founded
on rock, at depths varying from 13
to 16 feet.

Bridge at 105 miles. South-west
line—The new bridge of two
30 feet girder openings to replace
four 15 feet arches, also destroyed
on 6th May 1875, was opened for
traffic on 10th August 1875. In
this work the superstructure is built
on wells sunk 24 feet below river
bed, where they rest on Mounbro,
and as an additional precaution

curtain.

curtain walls and a flooring have
been added.

9. Gooriatlum bridge 98th mile South-
west line—The portion of this
bridge destroyed on 26 October 1874,
was reconstructed, and the bridge
reopened for traffic, on 18th September
1875. The new work consists of eight
30 feet arches on the square, and an
irregular opening 24 feet wide at
centre of track connecting the square
and skew portions of the bridge.
The intervening embankment having
been removed. The foundations
rest on hard Mounbro, at depths
varying from 19 to 23 feet below river
bed

bed, two of the piers being solid and
the remainder resting on pucca wells.

Bridge at 174th mile North-west line 10.

A 20 feet girder bridge has been
substituted for the 6 feet culvert
destroyed on 25th October, 1874, and
was opened for traffic on 24th
October 1875.

Condition of Way and works It 11.

is satisfactory, in so far as the
works are concerned, to record the
entire absence of flood damage
during the last official year; —
it be though, looked at from a traffic
or point of view, the short rain fall

which

which led to this immunity has
not been beneficial, as will be ex-
plained hereafter. The permanent
way was maintained in good
order throughout the year. Be-
tween Pothanore and Palghat,
the substitution of iron posts for
jungle-wood sleepers is being
gradually effected; the ten
miles of experimental creosoted
fir sleepers have also been laid,
and the condition of this section
shows considerable improvement,
though it will always be some-
what rough as long as the mixed
road / wood and iron / continues.

The

The question whether the iron subway shall be extended to Peryass has again been opened by the Railway authorities, and has been submitted to the Government of India for final decision. The decrease in prices of iron affects largely the comparative estimates which were first framed, and upon which the superior economy of iron was based.

The rails on the 1st Division South-west line, some of which have been down for more than 20 years, will soon require heavy renewals; the 84th rails between

between Madras and Arcot have had about 15,000,000 tons run over them. The desirableness of renewing with steel is under consideration, the low prices now ruling in the home markets rendering this a favourable opportunity for laying in a stock of the better material. Steel rails have already been substituted at the cost of Revenue between the Central Station and Veyssarpady Junction, where from the heavy traffic and sharp curves, they may be expected to prove economical.

A number of small arched

18.
arched bridges between Perambore
and Trivellore have had to be built
owing to insufficiency of foundations,
and in some instances, to bad material
and workmanship. The line still
continues somewhat rough between
Madras and Arcot, owing to
the laterite ballast, which is however
being gradually replaced by sand;
the number of turned rails also
adds to this roughness. The cost
of maintenance will be considered
when dealing with the working
of expenses.

Rolling stock. The rolling
stock 14.

19
stock has been maintained in
fair working order throughout the
year. Four first-class double saloons
were added, making a total of
eight carriages of this type now
running. Some of the old stock,
with which the line was opened
20 years ago, has now seen the
greater part of its life, and re-
newals will soon become heavy.
The third class carriages require
improvement, and this subject
is now under consideration. Al-
though the springs of a large portion
of the wagon stock were strengthened
to admit of their carrying nine tons,
it

it has been found necessary to limit the load to eight tons on account of the axles not being strong enough to bear the heavier weight which has safely. They have journals $9 \times 3\frac{1}{4}$, and are 4" in diameter at the centre. The high-sided wagons weigh altogether 5 tons 4 cwt, and excluding wheels and axles, are 3 tons 12 cwt; so that, with a load of 8 tons, the total weight on the journals will be 11 tons 12 cwt, and this is found to be as much as they can bear, even with the improved oil-bates.

During the calendar 15-

year 1875, 18 coke, and 44 ballast wagons, were broken up, the iron work returned to store. The ballast wagons were replaced by low-sided wagons, of which there was a surplus of 192; and 100 more of the latter were altered for the harbour traffic. In the same period 10 engines were renewed, and 68 underwent extensive repairs; the average number in the shops at any one time being 37, representing a large proportion on a total of 128 locomotives owned by the company. The question of screw couplings engaged attention, and it has been decided

decided to increase the stock -
the gradually until one is available
to for each vehicle. It is anticipated
by that considerable wear and tear of
hauling stock and permanent way
will be saved by this measure.

The Electric Telegraph. The lines 16.
of telegraph were efficiently main-
tained. The block system was
introduced between Gonda and
station and the Bellary Junction,
and gives greater convenience in
working trains between these two
points. The renewals during the
year were very heavy: the wooden
posts between Salem and Erode
having

having been removed, and Sigmis
iron posts fixed instead. Iron posts
are being gradually substituted over
the whole system. The Madras
Railway Company have not yet
been induced to transfer their lines
of telegraph to the Government, but
there is reason to believe that this
transfer will shortly be effected upon
the same terms as those accepted
by other companies.

17. In the year 1874 Mr
G. H. Winter, the Company's tele-
graph Engineer, devised an improved
method of intercommunication in
trains, the invention consisting chiefly

in the use of the safety or side chain as a means of communication, so that the ordinary coupling up of a train serves to complete electrical communication throughout. During the past year this system was perfected, and the tests made show a high degree of insulation even in wet weather, when a certain amount of cross leakage from one hook to the other must occur. The system was fitted to the trains which conveyed His Royal Highness the Prince of Wales from India to Madras, and worked satisfactorily in every way.

It.

It cannot of course be brought ^{14.} into general use on this Railway unless ^{15.} made applicable to all lines which interchange rolling-stock with it.

Railway Commission.

18. During March and April 1895, a Commission assembled under the Order of the Government ^{continued aim of improvement} of Madras, to inquire into the ~~causes~~ ^{of the falling-off} in the traffic of the Madras Railway.

Evidence was invited under the following heads:-

1. Fluctuation of trade.
2. Rates and classification.

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h with few exceptions endorsed by the
Government

3. Arrangements for the receipt,
custody, despatch, and delivery
of goods.

4. The conditions of the Rail.
way service.

5. Relations of the Railway
servants with the public.

6. Railway agency for the
attraction of traffic.

7. The alignment of the Rail
way and its connection with
towns.

8. Passenger accommodation.

The recommendations of
the Commission, and
which few exceptions endorsed by the
Government

15
Government and by the Board of
Directors of the Company, may be
thus summarized:—

1. That rates ought in certain
specified instances to be lowered.

2. That greater publicity should
be given to special and other rates.

3. That the classification should
be simplified and printed in the
vernacular.

4. That a Complaint Department
under the control of the Agent
and Manager should be instituted.

5. That the existing rule ordering
the despatch of all consignments
in the order of their numbers
should be rigidly enforced.

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6. That the system of charging
excess on overweight for prepaid
goods be abandoned.

7. That trucks delayed at
forwarding stations be dealt with
in the same manner as trucks
en route.

8. That the goods receipt note
should give

Date and hour of receipt.
Number.

Description.

Weight.

Descriptive marks.

Rail charges.

Probable date of arrival.

9. That the demurrage charge
should not commence till 24
hours after the probable date
of arrival. 18th

10. That with overdue goods
advice notes be sent on arrival
to the consignees, and the de-
murrage period be extended
to 36 hours.

11. That certain extra shed ac-
commodation should be provided.

12. That a Retiring Fund for
Railway employees should
be instituted.

13. That no Railway servant
drawing more than £20

monthly

monthly should be dismissed
except by the Agent and Manager.

14. That a conduct book to
replace the firing system
should be opened.

15. That the rule should be
rigidly enforced that station
masters should speak the
language of the districts in
which they serve, and be, as
often as possible, men of the
locality.

16. That the divisional staff
should be largely augmented,
and that in future natives
should be encouraged to qualify
for the appointment.

17. That native canvassers should
be appointed, and paid a
commission on the extra goods
they attract, in addition to
their fixed salary.

18. That light rail branches to
be worked by the Madras
Railway be opened between
the main line and

Vellore.

Palghat.

Calicut.

and perhaps also

Arcoot

Palani

and that the Bellary branch
should be extended to Gudalur.

19 That reserved 3^d class accommodation should be provided to the extent of two compartments holding 10 and one compartment holding 20 in every train; the offer of this accommodation receiving the greatest possible publicity, and the reservation being rigidly enforced.

20. That the Railway Company be called upon to discourage over-crowding, and to provide sufficient rolling-stock for extraordinary occasions.

21 That the names of stations and

and appointed stopping time be called out in the vernacular, and that carriage doors be all thrown open on arrival.

22. That ticket offices should be opened during fixed periods before the train departs, and that this rule be painted in the vernacular over the ticket window.

It is not probable that the 15th recommendation will be found practicable, and the 4th and 13th will require slight modification. The others either have been, or are in the course of being, carried

carried out

Accidents.

The number of accidents to trains during the last four calendar years were as follows:-

	1872	1873	1874	1875
1. Collision—	4	1	1	6
2. Getting off proper line—	4	7	18	8
3. Fire—	4	5	19	34
4. Running over cattle—	42	46	48	41
5. Other causes—	6	5	6	7
Total	60	64	92	96

No serious accident to a train occurred during the year 1875.

Of the collisions, one was caused by an engine coming slowly into contact with some wagons at Dollarpeth, and the other five were

cases in which trains ran into ¹⁹travellers or trucks. Four of these were proved to have been due to neglect of duty on the part of the Company's servants, while the last was a heavy truck maliciously placed upon the line by persons unknown.

21. The apparently large number of derailments in 1874 is due to the inclusion of all cases however trivial, whereas in other years only those are entered which resulted in damage to the works or rolling stock. In 1875, one derailment was caused by a temple bull being run over

on the Coopers Shant, when a
first class carriage were thrown off the line,
but fortunately without injury to the
occupants. Cowcatchers are now at-
tached to some of the engines, and
are being supplied to others as
expediently as possible.

The large number 22.

of fires in 1875 is due partly to a
dry season, and partly to the inclu-
sion of minor cases which were not
formerly shown. A trial is being
made with the plate spark-arrester
in use on the Peinde, Punjab, and
Delhi Railway, and the best
method

1.
method of protecting the ash-pan, so
as to prevent sparks from flying back
underneath the train, is also under
consideration.

23. Under head 5 are in-
cluded two cases of runaway vehicles
which might have caused
serious accidents. Upon 23rd July 1875,
ten third class carriages ran out of
Great Station for a distance of 16 miles
towards Arcum, but fortunately
without meeting a train. They
had been shunted by engine, and
on being uncoupled, moved down
the gradient of 1 in 264, and gradually
acquired a high velocity. A catch
rod

siding has since been constructed here.
 Two wagons ran for a
 distance of 10 miles from Gondaul
 station on 4th June 1875. A heavy
 gradient commences just outside the
 points, and as the shunting is not
 excessive, and only carried on by
 day, an iron shoe to be placed
 upon the rails has been designed
 instead of a catch siding
 other

The numbers of persons killed
 and injured were as follows:-

	1872		1873		1874		1875	
	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
Passengers								
From causes beyond their own control	1	5	-	-	-	-	-	-
From their own misconduct or want of caution	-	-	-	-	-	-	-	-
Total	1	5	-	-	-	-	-	-

Servants of the Company
or of Contractors

	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
From causes beyond their own control	-	2	-	-	3	6	-	2
From their own misconduct or want of caution	9	4	9	2	6	7	5	12
Total	9	6	9	2	9	13	5	14

Other persons

Crossing at level crossings	-	-	-	-	-	-	1	-
Trespassers, including suicide	4	2	5	1	5	-	2	-
Miscellaneous	1	-	1	-	2	-	-	1
Total	5	2	6	1	7	-	3	1
Grand Total	15	16	15	4	17	14	8	16

25. Train perrie - no interruption to
 traffic occurred during the official year
 through communication was successfully
 maintained across the beds of the Chey,
 Pansuque, and Chittravatty up to
 26th May 1875, when the bridges were
 reopened

reopened. The night service of
 trains on the North-west line was
 not resumed until 22nd December 1875,
 as it was not deemed prudent to
 cross the Ponnair bridge at night
 during the monsoons. Owing to the
 absence of heavy floods, and to the
 substantial stone road over the
 Huggri river, any such delay to
 traffic on the Bellary branch as that
 occurred in former years was entirely
 avoided.

The train service on
 the North-west line was the same
 as in the previous years, except that
 a daily goods train was introduced
 between

between Vellore and Raypore, which
 while assisting in the heavy grain
 traffic to the West, provided for the
 through service which was formerly
 performed by the mail train.

26. There was a want of
 punctuality in the running of trains
 during the year, about 15 per cent of the
 total being more or less late; the pro-
 portions being as follow:-

not exceeding 15 minutes	3.34 per cent
above 15 and not exceeding 30 minutes	6.32 "
30 " " 60 "	3.38 "
60 " " 90 "	1.20 "
90 minutes	0.96 "

The greater number are accounted for
 by

by delay at meeting stations; the
 additional causes assigned being
 heavy trains, high winds, testing of
 bridges during floods, and defects in
 engines.

Rates and fares.—No alteration
 was made in the ordinary rates and
 fares during the official year, but
 several special goods rates were in-
 troduced and others revised.

On 1st October the
 following revision was made in the
 rates for cotton carried over the North-

west line, viz.

	Prior	Prior
(Reduced to 35 lbs per cubic foot)	12 to 14	per ton per mile
25	14 to 16	"
19	16 to 18	"
15	19 to 21	"

with special rates of 12 and 14 pice
 per ton per mile for cotton pressed to
 35 and 25 lbs. respectively, booked at
 Raichore, Adoni, and Bellary to
 Madras.

Loose cotton at owner's
 risk of fire booked to Madras or
 towards the south—26 pice per ton per
 mile. Loose cotton at owner's risk
 of fire booked from and to certain
 stations, or south of a cotton pressing
 station to such pressing station—
 18 pice per ton per mile.

On the south-west
 line, loose cotton booked to Madras
 was reduced from 36 to 26 pice per ton
 per

per mile at owner's risk of fire.

Reductions were made

in Indigo, coffee, kerosene oil,

bees, salt, turpentine, sugar, &c. the

new rates being in some cases general,

and in others only local.

Comparison of earnings and working 28.

Expenses

In former reports it

has been usual to compare the traffic

for two official years, but as more

information is readily available for

calendar years, it is thought better

to adopt this basis of comparison in

the future. Comparisons to be useful

should also extend over a long

period, and in the following tables

five

five years have been taken. Some
particulars relating to the official year will be found
in statement C at the end of this report.

29.

The general results may

be thus compared:

	Gross earnings	Expenditure	Net Revenue	Percentage of expenses to receipts	Receipts per open mile per week.
	Rs	Rs	Rs		Rs
1871	59,90,455	30,71,093	29,19,362	51.27	139.6
1872	62,06,653	32,38,962	29,66,691	52.19	142.8
1873	60,03,350	39,19,378	29,63,972	56.91	156.8
1874	59,06,501	38,19,532	20,86,969	64.67	132.0
1875	64,29,753	45,18,602	19,11,151	70.28	113.7

The gross receipts per open mile per week

during 1875 were the highest, excepting

1873, when the sum of Rs. 82,493 was

realised by the carriage of construction

material for the Mysore State Railway.

The working expenses were the highest,

and the net earnings the lowest, on

record

record. The increased expenditure was incurred chiefly in the maintenance and Locomotive Departments, and will be dealt with further on.

The earnings under 30.

Coaching and goods were as follows:-

	Coaching		Goods		Total
	Amount	Per open miles per coach	Amount	Per open miles per coach	
1871	Rs 22,12,922	Rs 51.56	Rs 35,55,172	Rs 82.85	Rs 57,68,094
1872	23,79,969	54.78	36,09,351	83.07	59,89,320
1873	25,22,717	57.46	41,51,181	94.55	66,73,898
1874	24,69,483	55.20	32,18,298	71.94	56,87,781
1875	24,65,773	55.12	37,58,641	84.01	62,24,414

the ... as in ... a daily

The

The train mileage and earnings per mile.

	Mean mileage worked	Traffic train mileage	Average of trains each way per day over the whole line	Gross earnings	Expenses	Profit
1871	823	1,692,772	2.818	3.538	1.811	1.724
1872	831	1,738,770	2.858	3.569	1.863	1.706
1873	842	2,014,876	3.278	3.416	1.945	1.471
1874	858	1,925,473	3.074	3.067	1.983	1.084
1875	868	2,127,759	3.397	3.022	2.124	0.898

The principal feature in the last table is the large increase in the train mileage, the average number of trains each way per day having increased from 2.8 to 3.4, while the earnings per train mile have fallen from Rs 5.5 to Rs 3.0, a portion of this falling off being due to the lower average

average rates at which passengers and goods are now carried, and the remainder to a decrease in the average load of trains. The enhanced train mileage is due to the acceleration of the mail service rendering it necessary to decrease the load of the mail trains, and to the very large empty vehicle mileage owing to the preponderance of traffic downwards on the back-west line, and upwards on the South-west line. During the year 1875, the goods empty vehicle mileage formed no less than 20.2 per cent of the total. This question, which affects considerably the financial results, is receiving careful

attention, and endeavours are being made by specially low rates to fill these empty wagons which are now hauled at a dead loss. The increased expenditure due to the acceleration of the mail trains has been estimated at upwards of £6000 per annum.

32. Passenger traffic—The numbers of passengers carried in each class exclusive of troops and police were as follows.

	First Class	Second Class	Third Class	Fourth or Cooly class	Total.
1871	10,711	115,926	1,877,396	257,151	2,263,284
1872	9,722	111,866	2,000,359	350,032	2,471,979
1873	10,631	74,469	2,132,467	503,232	2,720,799
1874	11,717	52,258	2,111,892	569,806	2,745,773
1875	12,998	41,711	1,803,627	837,965	2,696,301

The

33. The receipts for each
g. class will be found in the following

table:-

	First Class	Second Class	Third Class	Fourth or Cooly class	Total.
1871	135,655	1,72,752	11,79,175	1,01,659	18,89,241
1872	132,728	1,53,444	15,98,014	1,38,678	20,23,864
1873	127,465	1,27,177	16,96,414	2,01,715	21,52,771
1874	125,783	1,14,813	16,21,021	2,32,017	20,93,664
1875	131,781	1,15,036	14,04,716	2,42,536	19,94,069

34. The percentage of
numbers and receipts:-

	Numbers				Receipts			
	First Class	Second Class	Third Class	Fourth Class	First Class	Second Class	Third Class	Fourth Class
1871	0.47	5.12	83.03	11.38	7.18	9.14	78.30	5.38
1872	5.39	4.53	80.92	11.16	6.61	7.58	78.96	6.85
1873	0.39	2.74	78.37	18.50	5.92	5.91	78.80	9.37
1874	0.54	1.90	76.83	20.73	6.01	5.48	77.43	11.08
1875	0.18	1.66	66.82	31.04	6.61	5.77	70.44	17.18

There

There was a large decrease during
the last year both in numbers and
receipts, which is attributed to the
general unhealthiness of the season.

From inquiries made by the Traffic

Manager it appears that cholera pre-

valled to a greater or less extent all over

the line, being worse in the Coimbatore

and Salem Districts. The festival

traffic shows a large decrease, owing to

the issue of cheap return tickets having

been in some cases abandoned on the

representation of the Collectors, who

warned intending travellers of the danger

that would be incurred in attending

them. The development in the cooly

class

class which now extends over 60 miles
of the system is under the circumstances
discouraging, and there is every reason
to believe that the third class traffic
will revive with an improvement in
the public health.

The conspicuous falling 35.
off in the second class is due to the
attaching of third class carriages to the
local train between Pochnore and
Beyfore from 1st July 1873. Formerly
only two classes were run on this
train, with a special fare of 4 pice
for second class, it being considered
that the well-to-do population of
Malabar could afford to pay more
than

than the third class fare. This ar-
rangement can hardly be said to have
been based on a liberal policy, and
since the change in the constitution
of the train, there has been an in-
crease in the number of third class
passengers and in the length of the
average journey; and although the re-
ceipts have not risen, the additional
working charges in hauling the extra
vehicles is in the opinion of Government
more than compensated for by the in-
creased popularity of the railway.

The first class does not
vary much. The reduction of fares on
31st August 1873 has been attended with
an

an increase in numbers combined with
 a small decrease in receipts. The higher
 receipts shown during 1875 are due to
 the visit of His Royal Highness the
 Prince of Wales.

Goods traffic—The receipts from 36.
 to each class of goods were:-

	1871	1872	1873	1874	1875
Special	1,72,621	10,12,404	17,18,252	10,67,637	10,79,213
First Class	13,62,015	10,86,677	11,52,864	10,04,696	13,76,376
Second Class	5,77,383	5,30,730	4,72,767	4,62,752	5,51,525
Third Class	5,22,398	3,72,817	3,15,567	3,01,996	3,54,989
Fourth Class	3,68,057	2,32,012	1,64,849	1,60,518	1,82,346
Fifth Class	3,67,930	2,37,611	1,57,052	80,529	78,665
Total	33,70,434	34,72,251	39,81,353	30,79,148	36,22,514

The

37.

The tonnage of goods

in each class.

	1871	1872	1873	1874	1875
Special	22,589	145,427	187,865	1,65,928	169,011
First Class	183,876	131,576	156,622	126,578	156,731
Second Class	52,171	43,679	12,966	42,129	48,312
Third Class	32,681	25,782	21,336	21,468	21,155
Fourth Class	11,519	8,863	7,117	7,477	7,904
Fifth Class	10,099	7,132	5,036	3,789	4,554
Total	315,935	360,159	397,972	366,369	410,967

38.

The average receipts per

ton per mile in each class:-

	1871	1872	1873	1874	1875
Special	7.73	7.79	8.67	7.88	7.55
First Class	9.15	10.71	10.61	10.53	10.24
Second Class	11.76	14.00	13.64	13.17	13.17
Third Class	17.02	17.41	16.93	16.80	16.75
Fourth Class	24.07	24.79	24.38	21.94	21.78
Fifth Class	35.79	35.77	34.18	30.67	30.87
Total	12.58	11.32	10.71	10.47	10.31

Deducting

5.
a. Deducting the abnormal receipts in
g. 1873, on account of Mysore material,
m. the earnings during 1875 were higher
l. than in any previous year.

n. This is due chiefly to the large
t. grain traffic between Vellore
and Ryssee, which fell off
a. largely in 1874, and to increases in
c. cotton, iron salt, skins, sundries and
timber.

l. The tonnage was also
the largest earned during any year,
but this includes 13,044 tons of
laterite for the Madras Harbour Works,
which realized £4,062 only.

The average carrying rate 39.

7.
rate for goods shows a gradual
decrease from 12.6 pice per ton per
mile in 1871 to 10.3 pice in 1875.

30
This is due to the larger proportion
now carried in the special class
the percentage of the total ton-
nage so carried having increased
from 7.1 to 41.1. This class now
includes all the chief staples of
the country which are carried
for distances over 300 miles at
6 1/2 pice per ton per mile.

The

which
 material
 exhibit
 the
 timber
 cotton
 large
 and
 the
 11
 2

40. The receipts from the Chief commodities carried are shown in the following table:

Articles	1871	1872	1873	1874	1875
Wool and	66,717	71,874	70,458	62,539	63,121
Wool	12,996	22,288	31,193	27,748	52,181
Wool and piece goods	105,570	104,368	126,523	112,730	111,417
Coffee	107,768	62,200	84,073	55,073	62,500
Concessional stores	2,453	43,311	84,401	56,257	61,959
Cotton	53,7763	372,180	320,932	306,702	1,57,854
Firewood	39,553	43,895	55,230	29,153	35,383
Grains and vegetables	22,599	30,977	42,880	50,294	46,506
Cheese	22,378	30,280	23,854	18,391	19,012
Government Telegraph materials	133,359	114,633	153,279	279,603	1,88,576
Grain	64,177	25,762	55,841	78,412	42,016
Grains	12,509	11,660	19,351	42,644	49,991
Grains					4,062
Grains					18,907
Harbour materials	24,012	20,616	25,518	17,757	107,988
Indigo	92,580	74,987	68,785	81,287	69,748
Sum of all kinds	73,515	32,593	56,738	60,983	

Luggage, etc.	13,913	16,218	17,830	18,978	26,984
Assam State Railway material			5,82,493	348	
Bit of all kinds	64,842	70,599	56,093	52,128	53,639
Ordinance stores	18,777	38,728	45,618	36,300	33,473
Paddy	13,040	29,698	15,662	13,536	27,040
Potatoes	45,103	43,226	50,174	26,918	21,877
Rapeseed	32,977	65,595	121,154	170,605	56,934
Rice	513,585	654,424	631,074	4,06,261	5,81,249
Salt	33,74,149	2,94,900	3,16,653	2,86,962	3,48,237
Salt fish	26,489	30,420	23,457	22,691	16,649
Seeds of all kinds	1,02,971	1,32,599	96,973	1,05,892	1,09,826
Shino	68,766	1,11,345	1,19,288	81,356	1,39,764
Sugar of all kinds	30,414	47,997	34,766	46,079	39,681
Timber	5,47,955	6,87,065	4,82,430	4,03,450	5,32,344
Tamarind	36,903	36,680	44,064	36,955	43,689
Tea	56,215	67,905	96,885	91,655	1,04,929
Tobacco	26,815	31,715	33,965	34,802	34,123
Twist	71,241	81,657	86,435	72,695	73,870
Wine and spirituous liquors	55,181	24,406	31,565	37,358	51,763

3
 3

During the first half of 1875, a very large increase in rice took place, but during the latter half, a falling off occurred owing to stocks being held in anticipation of an unfavourable season. The high prices ruling in the North Arcot District during the last four months of the year, are said to have completely paralysed trade with the Western Coast, where large quantities of grain were imported from Calcutta, and at lower rates than rice could be purchased in North Arcot. The falling off in raggy gram and grain is due to these crops having been injuriously affected by the heavy

heavy rain of 1874, and to stocks being held in anticipation of an unfavourable season.

41. Cotton traffic—The following table shows the number of tons carried, total receipts, and average receipts per ton, since 1864:

	Half		Loose	Total		Average receipts per ton
	pressed	Full pressed		Tons	Ruppes	
1864			13,148	13,148	1,45,062	11.03
1865			28,520	28,520	4,47,727	15.70
1866	28	63	7,902	7,993	1,84,041	23.02
1867	638	153	15,766	16,557	5,11,893	30.92
1868	23	879	23,193	24,115	8,18,865	33.96
1869		1719	17,032	18,751	6,90,472	36.82
1870	453	3,110	3,721	7,284	2,03,330	27.91
1871	4,905	7,020	5,594	17,519	5,37,714	30.69
1872	3,458	8,444	4,557	16,459	3,72,182	22.61
1873	873	14,443	4,012	19,328	3,20,932	16.61
1874	73	17,673	3,050	20,796	3,06,702	14.75
1875	47	24,352	6,202	30,601	4,57,835	14.96

The

The year 1875 stands first in tonnage,
 but is only fifth in receipts owing to
 the larger proportion of cotton which is
 now pressed, and to the loose cotton
 being carried for short distances only;

5158 tons of cotton were carried twice;
 first to the presses, and again in a
 pressed state. Deducting this from
 the total, the quantity of cotton
 handled during the year is re-

duced to 25,443 tons; being less than
 the during 1865, when it was all carried
 in loose.

Of the total quantity of full
 pressed cotton carried on the north-
 west line, Bellary contributed 10,476 tons.

Atone.

note.

The receipts
 during 1865 were
 comparatively small
 owing to the short
 lead, the line being
 opened only as
 far as Luddah.

Adoni 8803 tons, Yerragonela 1675 tons,
 Euddapah 618 tons, and Tadpatri 504
 tons. On the North-west line 2169
 tons were sent from Brode, Avenashy,
 and Coimbatore; 619 tons of cotton were
 sent to Bombay.

42.

The following is the
 tonnage of cotton delivered by rail at
 Madras and the quantity exported
 during the last three years:-

	Delivered by rail Tons	Exported Tons
1873	16,402	16,361
1874	16,022	16,133
1875	23,973	20,775

43. 35

The following table
 gives

gives the tonnage of salt traffic out of Madras:-

	1871	1872	1873	1874	1875
South-west line	30,710	31,041	33,903	32,263	40,250
North-west line	8,170	7,094	6,752	5,168	4,611
Total from Madras	38,880	38,135	40,655	37,431	44,861
Grand total from all stations	44,378	43,283	46,813	43,052	47,996

The tonnage on the North-west line has gradually increased especially, to Salem, and the westward; salt is now being pushed into Malabar with a rate of $6\frac{1}{2}$ pies per ton per mile, 699 tons having

been

been sent during the second half year. The policy of this step is questionable when the interests of Government are considered, as it would appear better that salt for stations west of Erode should be obtained from Negapatam. The division according to mileage occurs at Salem, 207 miles from Madras, and 204 from Negapatam, and, other things being equal, Madras salt should not be carried west of Salem. Negapatam salt is said to be somewhat inferior in quality and complaints

complaints have been made regarding the measurement adopted; the break of gauge also necessitates its transshipment; but notwithstanding these disadvantages it seems financially wrong to force Madras salt into the Coimbatore and Malabar Districts by quoting an exceptionally low rate when it could be obtained with a lead shorter by 75 miles. An important element in the consideration of this question is that the Madras Railway runs this salt in the opposite direction to their empty mileage, whereas on the South Indian Railway advantage could be taken of this traffic to load wagons which now run up from the coast empty. In the North-west line the figures continue to show a steady falling off which

which no reduction in rate seems to check, nor can any improvement be looked for until the tax on cart salt begins to make itself felt. There is also a good deal of competition in sea salt brought from the Koller pans by return carts and pack bullocks. A special rate of 8 pies per ton per mile was quoted for cart salt from Moodanoor to Bangalore.

45.

The work done by the Railway in transporting passengers and goods may be thus compared:-

	Passengers			Goods		
	Unit mileage	Passenger miles Average per man on foot worked	Ton mileage	Goods ton miles Average per one man on foot worked	Unit mileage	
1871	117,193,200	142,397	51.3	53,276,158	64,731	162.7
1872	127,199,678	153,069	51.0	60,173,103	72,411	163.6
1873	141,389,857	167,921	51.6	73,153,049	86,880	177.9
1874	136,995,042	159,668	49.4	58,162,282	67,788	156.0
1875	135,894,734	158,385	49.7	68,626,132	79,984	165.2

46. The traffic exchanged with the Great Indian Peninsula Railway is shown in the following table:

	Passengers		Goods	
	No	Receipts	Ln	Receipts
1873	3,107	37,777	*	*
1874	13,892	51,700	37,181	2,01,496
1875	18,224	60,353	31,889	3,34,110
			27,135	3,59,213

Working expenses — as already stated, the large increase in working expense occurs chiefly in the maintenance and Locomotive Departments, and a comparison under these heads is given in the following table

* Includes material for Vizian's state Railway

	Maintenance of way works and stations			Locomotive		
	Mean miles per annum		Amount	Per traffic		Per engine mile
	Maintained	from Reserve funds.		train mile	engine mile	
1871	Rs 9,69,550	690	Rs 11,05	Rs 11,55,826	Rs 10,925	Rs 8,051
1872	10,06,319	714	11,09	10,79,186	9,931	7,565
1873	11,32,968	827	1,733	12,23,611	9,717	7,583
1874	12,23,188	832	1,170	12,91,559	10,757	8,172
1875	16,58,359	842	1,969	14,63,157	11,002	8,397

48. The total maintenance expenditure during 1875 averaged Rs 164 per mile per annum, but the following exceptional items must be deducted in order to arrive at the ordinary cost under this head:

Renewal

Renewals between Pothanore and Palghat with sleepers of iron and of creosoted fir—	97,141
Substitution of steel for iron rails between Central station and Vengalpur Junction	36,512
Reconstruction of Cheyair bridge—	18,818
Repairs of damaged large bridges—	273,811
Additional works charged to Revenue—	39,983
Expenditure in connection with the visit of His Royal Highness the Prince of Wales	6,974
	<hr/> 503,239

being equivalent to a charge of £500
per mile per annum, and thus leaving
a balance of £114 to represent the
ordinary expenditure. This must be
considered high for a line with light
traffic, and would appear capable
of some reduction. On one division the
total expenditure was only £76 per
mile per annum.

The renewals of iron
sleepers formed 0.18 percent of the total,

as against 26.3 percent for jungle wood.
About 2 miles of rails were renewed, and
6 miles turned.

49. The increase in the
Locomotive expenses appear to be due
chiefly to the increased train mileage,
but in some measure also to the en-
hanced cost per mile run. The figures
given for 1875 both per train and per
engine mile are somewhat above the
average, which is due to the heavy
expenditure on repairs and renewals of
locomotives, to the increase in price
of coal - and to the larger consumption
per mile. The issue prices of coal
during the last four years have been

£18, £21.4, £24, and £30.7 re-
spectively. During 1875 the cost of
engagements from England fell from
£31.9.6 to £23.8.0 per ton, and
issues during the current year are
being made at £25 per ton. Some
purchases of Indian coal were made
at £20.10.0 per ton, and the question
of making special arrangements for
obtaining large supplies from Calcutta
is under consideration. It is difficult
to account for the increased consump-
tion per train mile.

a 50.1
The expenditure in
other

other Departments is shown in the
following table

Expenses.						
Carriages & Wagon			Traffic		General Charges.	Miscellaneous.
Amount	Per 1000 Mile	Amount	Per Traffic Train Mile	Amount	Amount	
Rs	Rs	Rs	Rs	Rs	Rs	
1871	172,708	7.081	1,76,959	4.508	188,620	109,130
1872	2,17,518	8.008	523,137	4.817	3,05,613	1,06,889
1873	2,14,412	7.055	5,64,325	4.481	4,24,355	59,675
1874	2,57,316	9.007	6,91,917	4.919	3,91,691	63,861
1875	3,17,015	9.764	6,22,457	4.681	4,35,100	22,514

The increase under "carriage and wagon"
is due to the greater age of stock
necessitating heavier repairs - Under
"Traffic" the cost per train mile varies
but little. The increase under
"General Charges" is due to the larger
proportion.

proportion borne by Revenue; and the saving under "Special and Miscellaneous" to the discontinuance of the contribution to the Fire Insurance Fund.

Progress of Works.

Cheyair bridge—A revised estimate 51. has been submitted for this bridge providing for raising the level by 3 feet and for four additional openings on the south bank as recommended by Sir John Hawkshaw. The total cost of the work, which will consist of fifty 64 feet openings, is estimated to be at Rs 9,33,477, being at the rate of Rs 267 per linear foot, of which Rs 33

is due to the new permanent way. The greatest depth attained by the cylinder is 93 feet. At the end of the official year nearly the whole of the cylinder sinking had been executed, and the additional material required for raising the level of the bridge, and for the extra depth sunk was awaited. The cylinder had not been embedded in rock as the whole of the diving and pneumatic apparatus was in use at the Huggri. It is hoped that this bridge will be completed during 1877.

52. Huggri bridge—During the year great progress was made with this bridge

bridge which is to consist of thirty
four 64 feet spans with piers formed
of two cast iron cylinders filled
with concrete. Seventeen piers have
been bedded in rock by the aid of
diving and pneumatic apparatus,
at some of the cylinders being also
of, heated with concrete. The greatest
depth reached is 64 feet. In the
original design none of the other
piers were to be formed of screw piles,
and the cylinders for these having
been ordered late some delay has
arisen in the prosecution of the
work. It is expected however that
the

the bridge will be completed
during 1877.

53. Protective works—The protective
works at the Palar, Pany, Gorriallun,
and Haggery rivers, have been in
abeyance pending a decision as to
the best method of dealing with
these bridges. The revised estimates
prepared according to Sir John
Hawthorn's designs, amount to
£ 9,17,021, and the question has
arisen whether it would not be
better and less costly to build entirely
new bridges. The Government of
India have called for plans and
estimates for such new works, but as
accurate

73
accurate bring of the river beds are
necessary before there can be prepared,
some time must still elapse before
a decision can be arrived at. In
connection with this question it has
been suggested that with a view to
serve Aroet and Vellao without the
construction of branches, the line
should be altered so as to pass
through these towns, regaining its
present location beyond Mailputty.
By this diversion the Palas would
be crossed near Aroet, and the
bridge over the Poney and Goniattum
be saved. Although the proposed
alteration

alteration would probably be
somewhat more costly than the
branches to Aroet and Vellao; the
Board of Directors are of opinion that
the advantages are such as to entitle
it to careful consideration.

54. Estimates amounting
to upwards of 10 lacs of Rupees
have been sanctioned for new per-
manent way over girder bridges,
and the work will be put in hand
shortly. The improvement consists
in substituting for the present cross
sleepers, longitudinal baulks carried
by iron cross beams rivetted to the
main girders. In the larger spans
flat.

flat-footed steel rails weighing 85 lbs to the yard will be used, but in the smaller openings the present double headed rail in chain will be retained.

In connection with 53.

the Locomotive workshops at Perambore, estimates amounting to £2,09,640 have been sanctioned for an improved water supply and for the erection of a new Smithy and foundry. The present Smithy, which is not large ^{enough} for carrying out the work entailed by heavy repair and renewals of locomotives

now rendered necessary, will be utilised as a boiler shop, for which there is at present no accommodation. The foundry was formerly located in a small building at Royapuram which has now become unsafe, and it is anticipated that the new buildings will enable a large amount of material such as broken plates, sleepers, &c. to be worked up anew, which can at present only be disposed of as old iron.

56. The proposal to make an extension from Mettupalaiam up the Coroor Shant was referred to the Board of Directors.

of Directors who replied that they
 had been informed that the extension
 was not recommended by
 the Government of India or approved
 by the Secretary of State.

They added that it would be
 useless to attempt to raise capital
 for it without a guarantee.

South Indian Railway.

57. Open mileage. The open mileage
 at the end of the official year
 was as follows:

Kegaputain to Tuticorin Metre Gauge	27 1/2 miles
Tuticorin branch	do — 10 —
Tichuopoly to Poda	5' 6" gauge 89 —
Arconum - Poyiranku Branch	3' 6" — 19 —
<u>Total</u> 400 miles	

His Royal Highness the
 Prince of Wales travelled from
 Tuticorin to Poda by the South
 Indian Railway and thence
 to Madras by the Madras Railway.
 The arrangements made for the
 journey were satisfactory.

58. Capital expenditure. The amount
 of capital expended on the open
 line

7 line up to 31st March 1876 was £2,57,17,257.
 8. /£ 2,407,070 / being at the rate of
 11. £ 62,793 / £ 6010 / per mile. The
 12. cost of the Southern Extension up
 13. to that date had but slightly ex-
 14. ceeded £4,000 per mile. The total
 15. capital expenditure including
 16. line under construction and lines
 17. was Rs 3,57,05,667. The sum of
 18. Rs 65,704 was expended in the
 19. conversion of gauge between Nagpur and
 20. and Indrapur, while Rs 2,01,970
 21. for were obtained by the sale to the
 22. and Punjab Northern State Railway
 23. which of the rolling stock thereby thrown
 24. out the surplus.
 25. repairs an

Dividend &c. The net profits of 59.
 the official year were Rs 7,27,829
 giving a dividend at the rate of 2.0
 per

percent on the total capital
 expenditure. The guaranteed
 interest from the commencement
 of the company up to 31st December,
 1875 amounted to £1,448,013.
 and the net profits for the same
 period came to a total of
 £432,762, leaving a balance
 of £1,015,257 to be met from the
 revenue of the country in ad-
 dition to the expenditure on
 land and control. The profits
 have thus averaged 1.45 percent
 per annum including the time
 occupied in construction. The
 prospects for the future are however
 more favorable, for taking the
 cost of the whole system when
 completed and fully equipped
 at

at \$70,000 per mile ^{and} with ⁸⁵ expenses at 50 per cent, the earnings necessary to pay the guaranteed interest will amount to \$130 per mile per week, and it is hoped that this will be realized before many years elapse.

the Loc. Condition of way and works. The ^{to} ^{ambone} broad gauge sections of the line ^{at} \$2.09 has been efficiently maintained and the narrow gauge lengths recently opened are gradually being worked up to a high standard. The stations and offices have been kept clean and in good repair; the sanitary arrangements becoming little to be desired. The conversion from the broad to narrow gauge by sections between the last train

on Saturday and first on Sunday morning was effected without difficulty under the complete arrangements made before hand by the Resident Engineer, leaving nothing but the shifting of the rail to the third line of posts and the fixing of the keys and fresh tie-bars to be completed between the trains; the traffic each succeeding week ^{increased} with the break of gauge at a different point.

61. Rolling stock. The broad gauge rolling stock has been let down quite as low as was compatible with safe working under the belief that the remaining section from Inchicopoly to Drogheda will be converted

converted to narrow gauge. The sale
of a considerable portion of the stock
to the Punjab Northern State Railway
was effected during the year under
review; the valuation of the stock
being made by the Locomotive Su-
perintendent of the Indian Railway.
During the construction of the new
lines the working of the inch gauge
engines in use by the Engineering
Department gave some cause for
dissatisfaction. The bases ap-
peared for some reason or other
to require frequent attention and
an ultimately early renewal; the pie-
ce bars were on several occasions
refused; the injector valves having
caused a disruption of the con-
necting bars between the cylinder
and

46
and tender; the leading spring
pistons many of them gave way;
several of the draw bars have ~~some~~
of them been broken. The engines,
however, after passing again
through the shops appear since
the line has been opened to have
worked much better, though the
pistons and draw bars continue
to give way; the former are being
received in a stronger pattern, and
the latter are being tested as the
design is not considered faulty
by the consulting engineers in
England. The cars have all
been modified to a pattern more
suited to the climate, and the
engines are now being deprived of
the

of the side play in their leading
wheels, the foot plate, having in
several instances worked loose; safety
chains are required for the tenders;
and the funnels have been lengthened
to lift the smoke above the ^{them} ~~cabs~~
the sidereads have been braced up
to lessen the side play in the con-
nection rods, and the engines are
all being fitted with cowcatchers

It was not thought safe 62.

from the cotton trucks as received
from ^{England} ~~here~~ without the addition
of strong iron knees and the shrink-
age of the ^{planking} ~~woodwork~~ said to be unavoid-
able with English woodwork
brought to India necessitated
their being rebuilt and the planks

drawn

drawn together. Many head-
stocks being renewed and split
have been renewed, and large
numbers of panels in the
passenger carriages have been
already replaced. The central
buffer system has been spe-
cially reported upon, some of
the drawbars have failed
at the weld and there are
defects inherent in the design
which yet remain to be removed.
The difficulty in coupling up
on a curve or with unequally
loaded trucks adjoining one
another, and the tendency
to

to unexampled en route, seeing both serious objections.

Accidents. No serious acc. 63.
cident occurred during the year 1875. There were ^{two} cases of uncoupling of metre gauge engines from their trains, one of which caused a collision by the train following up the engine on a falling gradient and the driver not keeping away. The rules in force to meet this emergency were found to be somewhat vague and are now under revision.

Two engines became detached from their trains by the breakage of draw bars. The axle of a broad gauge tank engine broke from

from excessive heating and caused a derailment.

64. Rates and fares. At the commencement of the official year the passenger fares were 12, 5 and 2 pice per mile but on 1st September, 1875, the first and second classes were reduced experimentally to 8 and 3 pice respectively; the third class fare of 2 pice being maintained. No conclusion can yet be drawn as to the result of the experiment, but the Government of India are of opinion that four classes may hereafter be found desirable as on the Madras Railway. No alterations were made in the ordinary rates for goods.

65. Train service. The train service on the

a Nagapatnam-Rode section was the
 same as during the previous year
 viz, two trains each way daily with
 extra trains when required; in the
 newly opened Southern Extension
 one ordinary train only was run.
 During the year a reference was made
 on this subject by the Secretary of
 State, who considered that the in-
 adequacy in the average loads
 shewed that the number of trains
 run might be reduced with advantage.

a After a careful comparison of the
 loads on other lines, and a con-
 sideration of the nature of the
 the traffic on the South Indian
 lit. can Railways, such as the inequality
 of up and down, the Local Government
 expressed the opinion that the number

of trains could not at present be
 reduced, but on the opening of the
 Northern Extension throughout from
 Madras to Tanjore it is probable
 that one train daily on the Trich-
 nopoly-Rode section will suffice.
 The train service was conducted
 with fair punctuality throughout
 the year.

B. Comparison of earnings and working
 expenses. The general results for
 the last five calendar years may
 be thus compared:—

	Gross Earnings	Expenditure	Net Revenue	Percentage of expenses to receipts	Receipts per mile per week
	Rs.	Rs.	Rs.		Rs.
1871	8,13,883	4,52,562	3,61,321	55.61	84.0
1872	8,42,022	4,78,873	3,63,149	56.87	86.7
1873	11,53,212	5,76,463	5,76,749	49.99	119.1
1874	9,69,746	5,89,678	3,80,068	60.81	100.1
1875	10,78,181	5,19,400	5,59,081	48.16	94.8

The gross receipts per open mile per
 were show a falling off during
 1875, owing to the want of development
 in the newly opened section, and
 to the small number of persons
 who, from the unhealthiness of
 the season, attended the yearly
 festivals. In 1873 the receipts were
 increased by the carriage of construc-
 tion material for His Highness the
 Nizam's State Railway which
 realized Rs 1,91,697. The low
 working charges of the past year
 are due chiefly to savings under
 Maintenance and Locomotive,
 as will be explained here after.

The earnings under coaching by
 and goods were as follows;

52 ✓ 9

	Coaching		Goods		Total
	Amount	Per open mile per week	Amount	Per open mile per week	
	Rs	Rs	Rs	Rs	Rs
1871	4,83,717	149.94	3,10,978	32.11	7,94,695
1872	4,68,050	148.19	3,56,846	36.74	8,24,896
1873	5,77,199	59.59	5,10,602	55.82	11,17,801
1874	5,39,217	55.67	1,04,738	41.74	9,21,455
1875	5,65,864	149.72	4,63,739	40.71	10,29,103

68. The train mileage and earnings
 per mile:-

	Mean mileage worked	Traffic train mileage	Average number of trains each way per week	Gross earnings throughout the whole line	Expenses	Profits
1871	185 $\frac{3}{4}$	276,522	2.039	2,944	1,637	1,307
1872	185 $\frac{3}{4}$	259,006	1.905	3,251	1,849	1,402
1873	185 $\frac{3}{4}$	330,277	2.126	3,491	1,745	1,746
1874	185 $\frac{3}{4}$	315,460	2.326	3,074	1,869	1,205
1875	218 $\frac{1}{4}$	315,051	2.166	3,125	1,505	1,620

The

The goods earnings per mile during 1875 compare favourably with other years excluding 1873, when exceptional traffic was carried, and the falling off is chiefly under coaching, the causes of which have already been given. There is a slight decrease in the number of trains run over the line but the receipts per mile keep up to the average notwithstanding that upward of one third of the total mileage was performed by make gauge trains.

Passenger traffic. The number of passengers carried in each class exclusive of troops and police were as follows :-

	First Class	Second Class	Third class	Total
1871	2,140	17,117	879,774	899,361
1872	2,241	16,110	1,093,369	1,111,750
1873	2,167	14,916	1,183,280	1,500,663
1874	2,706	15,088	1,193,870	1,511,664
1875	3,564	23,711	1,520,956	1,548,261

70. The receipts for each class will be found in the following table :-

	First class	Second class	Third class	Total
1871	8,877	15,178	1,294,597	1,537,664
1872	8,508	13,418	1,193,327	1,411,283
1873	7,514	13,705	5,22,961	5,44,290
1874	7,561	14,159	1,06,092	5,07,812
1875	9,301	16,482	1,93,581	5,19,447

71. The percentage of numbers and receipts

	Numbers.			Receipts.		
	First	Second	Third	First	Second	Third
1871	0.24	1.94	97.82	1.96	3.40	96.64
1872	0.20	1.45	98.35	1.93	3.05	95.02
1873	0.17	0.99	98.81	1.39	2.53	96.08
1874	0.18	1.00	98.82	1.49	2.79	95.72
1875	0.23	1.53	98.24	1.81	3.17	95.02

The numbers and receipts from the first and second classes have increased during the past years in a higher ratio than the extra mileage worked, but this is probably due to exceptional traffic in connection with the Prince of Wales' visit, as well as to the reductions in fares. It will be observed that the third class contributed upwards of 90 per cent of the total in number and 95 per cent in receipts.

Receipts

52

72. Goods traffic The receipts from each class of goods were:-

	1871	1872	1873	1874	1875
Special	52,841	67,508	257,088	93,924	1,05,259
First class	141,511	194,911	232,932	250,820	2,90,526
Second class	54,544	44,069	18,050	860	112
Third class	30,769	29,277	10,947	804	31
Fourth class	16,920	7,789	3,219	6188	15,812
Fifth class	10,534	7,775	9,283	2,604	766
Total	307,119	353,129	531,519	356,200	1,12,505

73. The tonnage of goods in each class:-

	1871	1872	1873	1874	1875
Special	35,081	33,758	46,877	38,924	32,110
First class	41,320	53,607	63,946	67,724	74,689
Second class	9,758	7,777	3,198	238	164
Third class	4,116	3,949	1,665	140	16
Fourth class	1,601	681	348	574	1,373
Fifth class	675	578	619	214	77
Total	92,571	100,553	116,663	107,814	108,359

The average receipts per ton per mile 74.
in each class:—

	1871	1872	1873	1874	1875
Special	7.717	7.827	9.420	7.772	8.029
First Class	11.387	11.819	11.731	12.017	11.656
Second Class	13.901	13.527	13.755	11.734	17.583
Third Class	18.151	17.867	17.747	18.131	17.200
Fourth Class	21.791	23.905	21.012	21.803	23.765
Fifth Class	35.178	38.461	39.115	37.309	47.953
Total	11.883	11.581	10.827	10.661	10.652

As compared with 1874 the tonnage of goods is nearly the same, but there is an increase in receipts owing to the higher average mileage. The average rate at which goods were carried shows a gradual decrease from 11.9 to 10.6 per ton mile, due to the larger proportion carried in the lower classes. The simplification of the classification continues to work satisfactorily. The receipts from the chief commodities carried are shown in the following table:—

Table:—

	1871	1872	1873	1874	1875
Orreca's fruits	8.543	10,926	9,710	6,482	8,986
Cloth	10,810	11,728	11,834	10,840	13,703
Leury stuff	10,744	15,597	20,194	22,569	25,336
Fruit and vegetables	17,138	22,783	14,854	17,139	10,054
Grain of all kinds	77,198	73,034	87,414	94,755	106,695
Granite stones	32,701	22,185	7,947	14,978	10,633
Hides	12,826	9,866	4,960	3,956	6,562
Oil and ghee	12,188	11,290	7,338	6,821	12,441
Oil cakes	13,707	12,415	7,921	9,478	13,652
Salt	17,735	66,632	66,581	61,130	60,743
Seeds of all kinds	25,773	28,685	20,117	29,926	36,123
Sundries	30,513	40,077	80,173	73,004	101,571
Tobacco	8,138	4,466	4,010	4,572	4,543
Hyams State Railway materials			1,91,697		
Total	306,113	329,896	526,050	355,649	4,13,525

The chief increases are under grain and sundries. In the former there is an improvement in the tonnage carried, but in the latter the enhanced receipts

receipts appear to be due to the higher mileage. The variations in salt are small.

The introduction by the railway in transporting passengers and goods may be gathered from the following table:

Passengers				Goods		
Year	Unit mileage	Passenger miles	Average	Unit mileage	Goods ton miles	Average
		per one mile worked	mileage		per one mile worked	mileage
1871	29,884,156	157,715	31.31	5,003,985	26,739	53.82
1872	31,882,382	187,792	31.21	6,920,123	31,872	58.51
1873	52,508,811	282,686	34.93	9,764,498	52,568	80.92
1874	48,641,040	261,863	32.89	7,694,127	41,422	62.96
1875	48,577,138	222,576	31.18	8,767,189	40,171	72.31

The mileage of passengers per mile worked shows a considerable decrease during 1875. As compared with the Madras Railway for the same year the results appear to be as follows:—

Passengers per mile worked.

Madras Railway took 3100, carrying them an average distance of 49.7 miles.

South Indian Railway took 7130, with an average distance of 31.2 miles

Goods

Goods per mile worked.

Madras Railway carries 479 tons for an average distance of 164.1 miles.

South Indian Railway carries 496 tons for an average distance of 60.6 miles.

The average contents of a train on the two lines in the same year were, supposing all trains to be mixed:—

Passengers. Tons of goods

Madras Railway 63.9 and 32.3

South Indian Railway 140.8 and 25.4

77. Working expenses. These compare favourably with former years there being a large decrease under maintenance and locomotive as shown in the following table:—

	Maintenance of way, works and stations			Locomotive expenses	
	Clean miles Cost per			per traffic	
	Amount	Maintained clean miles	Amount	Amount	Amount
		from Revenue maintained funds.	from Revenue funds.		
1871	1,05,119	185	568.21	1,67,048	9.666
1872	1,22,185	185	660.46	1,74,001	10.749
1873	1,20,455	185	657.09	2,51,576	12.187
1874	1,21,539	185	656.97	2,59,830	13.178
1875	80,332	185	434.23	2,25,402	10.452

The decrease under maintenance is due to savings on renewals of permanent way and repairs to bridges in consequence of the commission of the Carter's section of the one gauge when the condition of the line was considerably improved. The maintenance charges of this line have always, however, been moderate and have not exceeded Rs 55 per mile per annum, which contrasts favourably

favourably with similar expenditure on the Madras Railway, though it is to be remembered that the circumstances of the two lines are somewhat different.

In the Locomotive Department, the increased tonnage caused a larger expenditure under running expenses; but although the consumption of fuel (expressed in coal) was nearly 1000 tons greater than in 1874, the cost was upwards of Rs 17,000 less, owing to the reduced rate charged. The issue prices of coal during the past four years have been Rs 20, Rs 25.5, Rs 29 and Rs 20.1. During 1875 the cost of segments varied from Rs 20 to Rs 16.10 delivered in store, and issues during the

the current year are being made at \$19 per ton. Not much Indian coal was purchased during the year but some chance cargoes of Australian were obtained at favorable rates.

The expenditure in other 78 departments is shown in the following table:-

	Carriage & Wagon Expenses		Traffic Expenses		General charges	Special & Miscellaneous Expenditure
	Amount	Per 1000 articles	Amount	Per traffic ton miles	Amount	Amount
	\$	\$	\$	\$	\$	\$
1871	33,913	8.853	65,885	3.812	65,573	11,994
1872	39,391	10.065	68,705	4.211	58,126	16,162
1873	16,678	8.574	80,685	3.909	61,511	12,558
1874	56,292	10.892	87,123	4.520	56,193	6,701
1875	29,516	4.972	1,08,700	5.040	71,800	3,650

Main distance South & tance

The decrease under "carriage and wagon" is due to the broad gauge stock having been let down in consequence of the conversion of the eastern section to the metric gauge, and to the new stock requiring but light repairs. The decrease under "special and miscellaneous" is due to the discontinuance of the contribution to the Fire Insurance Fund.

the current year are being made at \$19 per ton. Not much Indian coal was purchased during the year but some chance cargoes of Australian were obtained at favourable rates.

The expenditure in other 78 departments is shown in the following table:-

	Carriage & Wagon Expenses		Traffic Expenses		General Charges		Special & Miscellaneous Expenditure
	Amount	Per 1000 vehicles miles	Amount	Per traffic train miles	Amount	Amount	
1871	33,913	8.853	65,885	3.812	65,573	11,994	
1872	39,391	10.065	62,705	4.211	58,126	16,162	
1873	16,678	8.574	80,685	3.909	61,511	12,558	
1874	56,292	10.892	89,123	4.520	56,193	6,701	
1875	29,516	4.972	1,08,700	5.040	71,800	3,650	

The decrease under "carriage and wagon" is due to the broad gauge stock having been let down in consequence of the conversion of the eastern section to the metre gauge, and to the new stock requiring but light repairs. The decrease under "special and miscellaneous" is due to the discontinuance of the contribution to the Fire Insurance Fund.

Progress of Works. 945/
Southern Extension 215 miles.

79. The section of line 196 miles between Trichinopoly and Madurai was opened for public traffic on 1st September 1875, but the station buildings were not completed till some months later. The section between Madurai and Tuticorin, 98 1/2 miles, was formally opened by His Royal Highness the Prince of Wales on 10th December 1875, but was not available to the public until 1st January 1876, when the Tinnevely branch 18 miles was also opened. The completion of the work

work remaining unfinished on 1st
September involved the laying of 34
miles of permanent way, and the
erection of the iron work for 79 girders
bridges including eighteen 70 feet spans,
and this was accomplished in 82
days although during the monsoon
months. The terminal works at
Trinavelly and Tuticorin are still
unfinished, but the stations and
buildings elsewhere may be considered
to have been practically completed by
the end of the year.

The principal bridges 80.
on the Southern Extension are the
following:-

Vygay; fifteen spans of 70 feet
Saloor; twelve—do—do—
Chittaur; ten—do—do—

The aggregate lineal waterway
amounts to 45 feet per mile and includes

Forty four spans of 70 feet
Twelve—do—50 "
Fifty six—do—30 "
Twenty three do—20 "

— plate girders being used in all
cases.

81. The conversion of the
open line between Keshapatan and
Tichindipoly from the Indian to the
metre gauge was effected without
interruption to the ordinary traffic

(Same)

work remaining unsupplied on 1st
 September included the laying of 34
 miles of permanent way, and the
 erection of the iron work for 9 spans
 bridges including six spans of 70 feet spans,
 and this was accomplished in 82
 days although during the numerous
 marches. The tunnel work at
 Simmelly and Sukomir are still
 unfinished, but the stations and
 buildings elsewhere may be considered
 to have been practically completed by
 the end of the year.
 The principal bridges on the
 on the station between are shown

Viggay; fifteen spans of 70 feet
 Saloor; twelve—do—do—
 Chittaur; ten—do—do—

The aggregate lineal waterway
 amounts to 45 feet per mile and includes

Forty four spans of 70 feet

Twelve—do—50 "

Fifty six—do—30 "

Twenty three do—20 "

— plate girders being used in all
 cases.

81.

The conversion of the
 open line between Kegapatam and
 Trichinopoly from the Indian to the
 metre gauge was effected without
 interruption to the ordinary traffic
 (Sare)

The year under review 83.

has not shown the necessity for any large increase in the waterway provided by existing bridges; and the cost of the 215 miles of the Southern Extension will not, it is thought, when complete exceed £50,000 per mile. The line is still unfenced, but the working of the traffic - during the past year certainly does not indicate the necessity for this further outlay so long as the maximum running speed 20 miles per hour is maintained at the present reasonable standard, and no night service

service is required. The telegraph was erected and is now maintained by the Government Telegraph Department, the Company renting the wire the terms of the lease being as yet, however, undecided.

84.

The country traversed by the line is peculiarly bleak for many miles of its length, and the absence of trees and shelter in the immediate neighbourhood of the stations has rendered desirable the erection of roomy waiting sheds for ^{third-} class passengers, and these are about to be built. Sheds for the supply of drinking water to all classes

are being erected on the platforms temporarily, and are much appreciated; the most suitable permanent arrangement for this provision will doubtless be decided during the current year. Great efforts are being made to plant trees near the stations, and upon all passenger platforms, and the success attained on the section of line between Megapatare and Richinopoly warrants the hope of similar success further south.

The collectors of 85 the several districts served by the Southern Extension have warmly co-operated the interests of the travelling community

community, and are encouraging the creation of native rest-houses in close proximity to the several Railway stations. It is proposed to inaugurate a system of periodical meetings between the administrative officers of the Railway and the representative heads of the trading and travelling community. Collectors have encouraged the proposal, and good is expected to result from the measure.

86. The development of the passenger traffic has excited anticipation, and already indicates the necessity for an increased train service at no very distant date. The goods

goods traffic is as yet less promising. Cotton has begun to travel by rail, though the distance from the cotton fields to the port of shipment is so small as to make the disadvantage of breaking bulk an important consideration. With the low rates and simple form of classification now introduced by this Company, under which all ordinary goods fall practically under one of two classes, ultimate success can hardly be doubted.

A small additional length of line is about to be constructed adjoining the terminal station yard at

at Sullien, to connect the line with the salt pans. There can be little doubt that this small extension will pay the Company by enabling salt to be loaded directly into the trucks and so discouraging the system of reline salt loads, which enables cart men to carry the cotton in successful competition with the Railway.

88. The early traffic between the Southern districts of the Presidency and Ceylon is engaging attention. Shelter for these passengers, on disembarking, is about to be provided by the Local Funds Board.

Boards, and fuller publicity of the
advantages offered by the Colombo-
the Indian route over that by Rangoon
for Straits mail, it is hoped, still further
develops this traffic. The British
of India Steam Navigation Company's
steamers have evidently offered at-
tractions superior to those hitherto
met with in the country craft,
and a diversion of the traffic from
the route by more northern ports
may be looked for.

The possible extension of

of the Company's line into the -
Travancore Territory has already
attracted notice, and the establishment

of cotton presses at Virudupetty for
looked forward to with interest as
likely to secure for the Railway in
a more remunerative form the export
traffic in cotton.

In opening out easy
communication from distant districts
with the hitherto almost inaccessible
Sanitarium on the Pulney Hills,
this line has conferred upon the
public an advantage hardly yet
appreciated. A transit Company
is occupying the line from Annam-
malam, the nearest Railway
station, where the new traveller's
bungalow is approaching completion,
and

and a night's run of 30 miles will
in future convey a passenger to the
foot of hills providing a suitable
for children, and invalids who
may have been forbidden the harsher
conditions to be encountered on the
Hilgris and more northern Ranges.
The new shaft now being made -
will enable the summit of these
hills to be reached in 35 miles from the
Railway with a gradient of 1 in 19.

a settlement of the 91.

long pending question of the gauge
to be adopted between Erode and

Trichinopoly, the link between the
two main lines from Madras to the

North, is eagerly expected; and it is
not unlikely that the practical
illustration of the carrying powers
of a narrow gauge line, afforded during
the period under review, may turn
the scale in favour of the Company's
interests. On the Company's side it
has been argued (1) that, if in any
part of their district a cheap line
ought to replace its heavier and
more costly rival, it should be
in the poorly inhabited unproduc-
tive district between Erode and
Caroor, hitherto the least paying
portion of the system; (2) that, -
seeing there must be a break of
gauge

gauge, it ought to be established
at where it affects the smallest damage
to the goods, that is, at Trade; (3) that,
for this company to work a broad-
gauge branch of 89 miles, with a
narrow gauge system of 574 miles,
side must be a very costly arrangement;
(4) that the station arrangements
for a break of gauge at Trehinipol
must cost far more than
at Trade and be situated in a
locality already found injurious
to the health of the station staff;
(5) that a break of gauge does
not
adjoin
necessarily involve such troops
the passing of the night at Trade

and that this inconvenience/cost
always be mitigated with a special
train service, such as there would
certainly be in an emergency; -
(6) that the experience already
gained at Trehinipol has
proved that to establish the
break of gauge, where it was
never contemplated, at the
meeting point of four lines, must
be very costly, while the contingency
in favour of which it is advoca-
ted is remote, and the inconvenience
to troops not otherwise insurmountable.
On the other hand it has been
argued, (1) that the conversion of
the

of the road to narrow gauge will cost money for which no direct return can be looked for; (2) that for the transport of troops a break of gauge at Trichinopoly would be far more convenient than at Erode, where provisions are difficult to procure and the climate is unhealthy; and (3) that the Madras Railway Company could work the branch in addition to their existing mileage with but small increase of rolling stock.

Northern Extension 217 miles.

The official year 92.

under

under review found the separate districts of this section of the Company's system under construction, but no portion could during the year be opened for traffic. The waterway to be provided is extensive, that for large bridges alone amounting to 65.6, and the total to 85 linear feet per mile, as compared with a total of 45 feet on the Southern Extension. It is probable that the first 76 miles from Madras as far as Tiruchirappalli will be opened by the 1st September 1876, a temporary line being laid across the bed of the Palar river pending the completion of the

of the bridge of eighteen 120 feet spans.
The portion between 93.

neti Tanjore and Bambasam may be
for opened early in 1877; but it is not un-
likely that six months more will
be needed for the completion of the
portion from Sivdevanum to Budda-
cur low, the Thondyar, Guddelano, and
Panar rivers bridged by 2, 10, and
6, 17 spans of 100 feet respectively, being
crossed by temporary lines laid
on the river beds. The part from
Buddalore to Bambasam awaits
the completion of the large bridges
over the Coleroon and Vellaur, the
former being fourteen and the latter

four

four spans of 150 feet.
The location of the
terminal station at Madras has been
much discussed, the Company's officers
urging a separate site near the Peni-
tentiary, while the Government of
India advocate an effort being made
to utilise the existing Central Station,
and a portion of the goods yard of the
Madras Railway. It has accordingly
been determined to open the line with
a temporary station at Egmore pending
further experience to be gained in the
working of the traffic. The arguments
against carrying the line into the
Central Station of the Madras
Railway

51
Railway may be thus summarised
as regards passenger traffic; (1) It
would entail either a back. shunt
with its consequent loss of time, and
of extra distance varying from $\frac{3}{4}$ to $1\frac{1}{2}$
miles according to the point ^{selected} ~~sketched~~
for the junction; or an extra distance
of about $3\frac{3}{4}$ miles if taken round by
a Pambore; the delay in either case
being very discouraging to local
traffic; (2) It would entail extra
cost in the first instance; (3) It
would necessitate a level crossing
at the Pannamallee Road one of
the most crowded thoroughfares in
Madras; (4) There ~~not~~ ^{being} sufficient
accommodation

52
accommodation for the Traffic Depart-
ment of the ^{Madras} ~~Madras~~ Railway in the
office now ~~provided~~ ^{available} in the Central
Station, it would be necessary to provide
almost the same ^{additional} accommodation as
would be required on a separate site;
the waiting rooms and passenger shed
being alone available for use by ^{both} ~~two~~
Companies; and the provision of this
accommodation would, it is thought,
be more costly if in keeping with the
design of the Central Station than if
in a separate building.

The advantage to be
gained by taking the line into the
Central Station will only affect —
through

of through passengers who will be very
few in number, when the line from
Chingleput to Arcot is finished.

As regards goods there would be less
difficulty in carrying through goods

by a branch crossing the Ponnammallee
road and following the right bank

of the Canal into the Salt Water
yard, as the road crossing would

be but seldom closed; the site,

however, owing to the soil, would

be an expensive one for building upon.

The Officer in charge 95.

of the Harbour Works will possibly

attempt to find quarries from which

stone may be run down to the Harbour

by

by this Company for the Southern pier,
and a considerable traffic in gravel for road-
making is looked forward to in ^{the} Ranch Arcot and
Chingleput Districts.

96.

No orders have yet been passed

upon the proposal to connect Arcot with the
Madras Railway with Chingleput on the South
Indian, although this forms an essential link in

the narrow gauge system. Estimates have been
sent in for this section, and upon its completion

depends in a great measure the solution of
the question as to the terminal site in Madras.

There can be little doubt that with this link
constructed, the transfer of goods and passengers

from the South Indian Railway to the Madras
Terminal will be insignificant. The branch to

Pondicherry is also still unexecuted.

97.

The total progress of the work

up to date may be thus summarized. From Madras
to Porto Novo (14.5 miles), the earthwork may be
regarded

and
regarded as complete; between Porto Novo and
Tanjore 7 1/2 miles / a large proportion has been executed
The masonry in "minor bridges and culverts"
between Madras and Chindivanam 7 1/6
miles / is with few exceptions complete;
and in the remainder of the line good
progress has been made.

As regards "large
bridges" the masonry of the Coram
and Adyar is complete; at the Palar
the cylinders are still being sunk
in sand; the Gingee bridge is
on solid masonry foundations and
is well formed; at the "Thandiyar",
"Neravandi" and Panar, cylinder
erecting is in progress; while ^{at} the
Quadelam the wells have
nearly reached the intended
depth

RAILWAY DEPARTMENT.

CONSULTING ENGINEER'S OFFICE,
Madras, 18th Aug 1876.

No. 416
From Major C. I. Smith R.E. *W*
~~Lieut. Colonel J. H. M. Shaw-Stewart, R.E.,~~
Consulting Engineer for Railways,
To MAJOR-GENERAL G. W. WALKER, R.E.,
Secretary to Government,
Public Works Department,
Fort Saint George.

SIR,

I have the honour to
submit the Administration Re-
port of this Department for
the official year 1875-76.

It has been usual
to send a copy to the Chief
Secretary to Government but
considering the labour which
would be entailed in copying
the present Report which is
drawn up in a more compre-
hensive form than formerly,

I trust that this will be dispensed
with until printed copies are avail-
able.

3. I shall be glad if the
proof can be sent some for
final revision before copies
are struck off, in order that
the figures entered in the va-
rious tables may be verified.

I have the honour to be,

Sr,

Your most Obedt Servant,

C. Smith Major R.E.
Offs for Engineers for Railways

11. _____

800-8-75 to 2397

PROCEEDINGS OF THE MADRAS GOVERNMENT.

OF THE MADRAS GOVT.

UNDER date the *5th Oct. 1876*

Read the following:—

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N^o 2687:

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See

I am directed to forward herewith copies of the Administration Report of Guaranteed Railways of the Madras Presidency for the years

Long for a long time
G. H. H. H. H.

RAILWAY DEPARTMENT.

From
W. H. C.
The Consulting Engineer
for Rail

To

P. W. Department,
Fort Saint George.

Dated 18
Received }
1876

No. 410

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